Manufacturers Record

Reg. U. S. Patent Office

FEBRUARY 1933 — 25 CENTS A COPY

REFLATION

Speeches are being made and articles written on what is termed "reflation," meaning efforts to bring commodity prices to a point more nearly in consonance with the present price of the dollar. In Washington, certain legislators are demanding inflation through the issuance of new money, either by reducing the reserves of the Federal Reserve Bank and still keep the country on a gold basis, or by the issuance of money without gold back of it. The bill to remonetize silver on the basis of 16 to 1, bringing back thoughts of the days of 1896, has been defeated in the Senate by a decisive majority.

Irrespective of the terms used to define measures that are more or less arbitrary and artificial, all of them are to a degree inflationary in their tendency and of necessity must be in the effort to revive sick business. The conservative business element points out that there is already an abundance of currency and Mr. Walter Lippmann calls attention to the fact that we have nearly a billion more currency than we had in 1929 and prices are much lower.

An extension of credit, both as to time and terms, is unquestionably necessary to ease the load of debt that is crushing in its amount.

It is deplorable that attempts to balance the budget during the present lame duck session of Congress have been abandoned. It means two months more of delay before a special session can get to work and nothing is more tremendously important to the country than to have the financial affairs of the government put in proper shape.

People are waiting expectantly for definiteness and assurance of a program on the part of the incoming administration that will indicate determination and capacity to move directly in an attack upon extravagance which can be stopped and should be stopped. Definiteness in a program that will lead us out of the present morass of government operations and government competition with private business that should be reduced instead of increased. On the whole the spirit of America is remarkable in view of the discouragements the country has faced.

There is distinct hope that the last half of this year will be much better than any period in the past two or three years. The present volume of the country's business is 15 per cent above the low point of last summer. The upturn has started, slowly and with some recessions, indicating that the depression in its intensity is passing.

THE TALL TREE HAS A STRONG TRUNK— OTHERWISE IT WOULD NOT GROW TO BE TALL

Top: Telephone Building, Atlanta, Ga. Marye, Alger & Vinour, Archts.; W. C. Spiker & Co., Engr's; Barge-Thompson Co., General Contractors, all of Atlanta.

Upper Center: Reynolds Building, Winston-Salem, N. C. Shreve & Lamb, New York, Archts.; James Baird Co., New York, Gen'l Contrs.

Lower Center: Sterick Building, Memphis, Tenn. Wyatt C. Hedrick, Fort Worth, Texas, Architect.

Bottom: Smith-Young Tower Building, San Antonio Texas. W. E. Simpson Co., San Antonio, Engineers. McKenzie Construction Co., San Antonio, General Contractors.

FABRICATED Structural Steel is the trunk of the modern skyscraper. Without the strength and compactness of steel the great building heights of today would not be possible.

Over a period of years we have designed, manufactured and erected the steelwork for a great number of tall buildings from Virginia to California. The four shown here are recent and typical. But we are proficient not just in skyscrapers or big bridges. We do lots of small, simple work and an endless variety of small, intricate, exacting fabrication. Large or small, all orders receive the same careful attention and handling. Let us quote you prices and deliveries on your work.

VIRGINIA BRIDGE & IRON CO.

Roanoke Birmingham Memphis Atlanta New Orleans
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VIRGINIA BRIDGE

STEEL STRUCTURES

Entered as second-class matter at the postoffice, Baltimore, Md., under the act of March 3, 1879. Volume CII, No. 2, Monthly.

Zinc Chloride treated timbers in the loading dock of a sulphur mining company. In excellent condition after fifteen years of service.

Stop Throwing Money Away!

The ZINC CHLORIDE *Treatment of Structural Timbers Prevents* WASTE

SOME grades of untreated timbers are cheaper than timbers preserved with Zinc Chloride. It is only natural that the pressure-treatment of wood should add to its expense. But think what it SAVES! Timbers treated with Zinc Chloride have many times the life of untreated timbers. They eliminate frequent, costly replacements.

The Zinc Chloride treatment renders mill timbers ROT-PROOF, RESISTANT to TERMITES (White Ants), and RETARDANT to FIRE. But longer life is only *one* advantage of the Zinc Chloride treatment; it also leaves timbers *Clean, Odorless* and as *Paintable* as seasoned untreated wood.

Treating timbers with Zinc Chloride is *not* an expensive process. A good share of its cost is saved because it permits the satisfactory use of sapwood, instead of the more expensive heartwoods . . . Treated sapwood has equal strength and will serve *3 times as long* as untreated heartwood.

There are commercial treating plants located conveniently near you, which are equipped to treat under pressure whatever timbers you require. Write us for their names.

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● Send for this free, illustrated book which explains the advantages of the Zinc Chloride treatment of wood and points the way to valuable economies in mill construction and maintenance.

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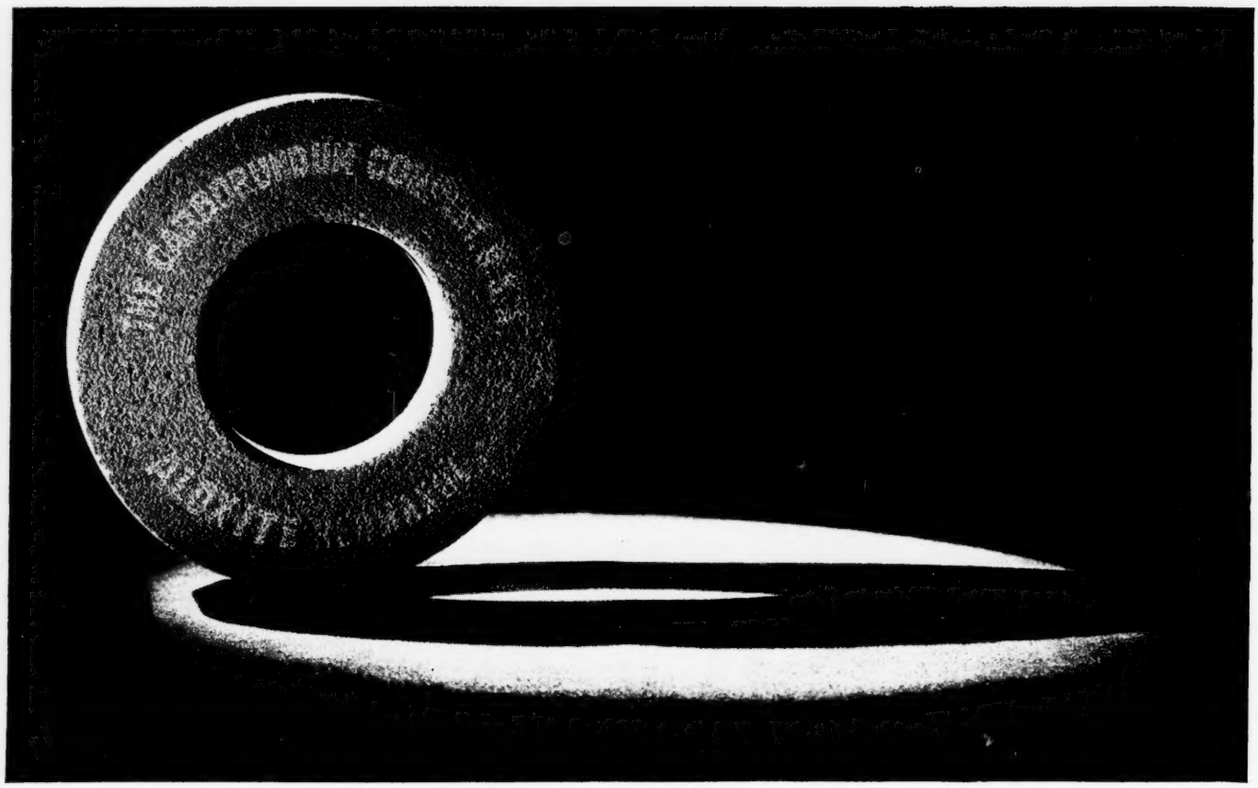

OUTSTANDING

THE ALOXITE BRAND

REDMANOL WHEEL

REG. U. S. PAT. OFF.

Tune in
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Saturdays at 9.30 E. S. T.
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EVER since this high speed grinding wheel was introduced to the steel foundry industry, its record for increased production and lowered grinding and wheel costs has been outstanding.

▪ Bonded with Redmanol (product of Bakelite Corp.), the free cutting action of this wheel, its ability to retain its cut and withstand the punishing conditions of most high speed snagging have earned the respect of the men on the machines and the plaudits of those responsible for grinding costs.

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REG. U. S. PAT. OFF.

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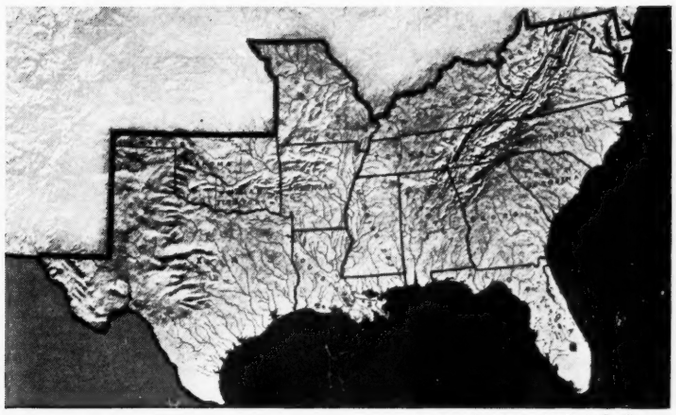
(CARBORUNDUM AND ALOXITE ARE REGISTERED TRADE MARKS OF THE CARBORUNDUM COMPANY)

TABLE OF CONTENTS

FEBRUARY 1933

Vol. CII No. 2



Photo—Courtesy Geological Survey

The South has 31.8 Per Cent of the Land Area and 33.6 Per Cent of the Population of the United States

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly

by the

MANUFACTURERS RECORD PUBLISHING CO.

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PUBLISHERS DAILY CONSTRUCTION BULLETIN AND BLUE BOOK OF SOUTHERN PROGRESS

Member, A.B.C.

EDITORIALS

Reflation ..... Cover Page
Muscle Shoals 11
Buy American Quality Products 12
Imports That Undermine 12
A Factor in American Progress 13
Georgia 13

NEWS and FEATURE ARTICLES

Georgia Builds for the Future ... By Gov. Eugene Talmadge 14
Where Opportunity Beckons ... By Dr. Andrew M. Soule 15
Georgia's Part in National Progress ... By P. S. Arkwright 16
Development of Inland Waterways System By Col. Clarence B. Douglas 18
The Restoration of Williamsburg ... By B. W. Norton 20
Constructive Business Planning ... By E. T. Weir 23
Southern Gas-Steam Electric Plants ... By J. B. Nealey 24
Workmen's Compensation Insurance ... By F. Robertson Jones 26
The Smaller Plants Possibilities ... By D. R. Stevens 27
$19,472,000 in Construction Awards ... 28
Industrial Expansion Continues ... 30
Appraising Industrial Property ... By Louis B. Beardslee 56
Unemployment Reserves ... 68

SPECIAL DEPARTMENTS

Iron, Steel and Metal Market ... 34
Good Roads and Motor Transport ... 37
New and Improved Equipment ... 42
Industrial News ... 44
Items of Interest ... 48
Financial News ... 50
Textile Notes ... 54

Index for Buyers ... 68
Index of Advertisers ... 70

INTERNATIONAL HARVESTER ENTERS LOW-PRICE TRUCK FIELD

Announces Half-Ton 6-Cylinder Model to Sell at $360

for 113-inch wheelbase chassis f.o.b. factory (tax extra). Every type of body available to meet every requirement.

$360

chassis f.o.b. factory (tax extra)

Rated Capacity: 1/2-ton.
Wheelbase: 113 inches.
Engine: 6-cylinder, L-head type, 3-5/16-inch bore x 4-1/8-inch stroke. Develops 70 horsepower. Exhaust valve seat inserts. Full pressure lubrication. Downdraft carburetion. Air cleaner.
Clutch: 9-inch single plate, with built-in vibration damper.
Rear Axle: Spiral-bevel gear type. Hotchkiss type final drive. Chrome-molybdenum axle shafts, pressed steel housing. Tapered-roller differential and axle-shaft bearings.
Brakes: 4-wheel mechanical, 2-shoe type, self-energizing, internal-expanding and cable-controlled.
Springs: Semi-elliptic. All leaves of chrome-vanadium steel. Self-adjusting spring shackles.
Wire wheels: 40-spoke, 18-inch with 5.25-18 balloon tires.
Standard equipment includes trumpet horn, spare wire wheel, fender well tire carrier, front and rear fenders, and full-length running boards. All instruments attractively grouped in panel on dash.

THOUSANDS of truck users have long looked for a half-ton model from International Harvester. They have missed International *quality* in the low-price field.

For it is on *quality* that International Harvester built its outstanding success. Because of *quality* it has steadily increased its leadership among full-line truck manufacturers, greatly improving its relative position during the recent difficult years.

It has established this record on chassis prices never lower than six hundred dollars and ranging up to more than six thousand. High reputation, dependable performance, and unfailing service have brought new International buyers in increasing thousands.

Now new conditions have given us our opportunity. *Today* International provides another product of high quality in the new International Half-Ton Model D-1.

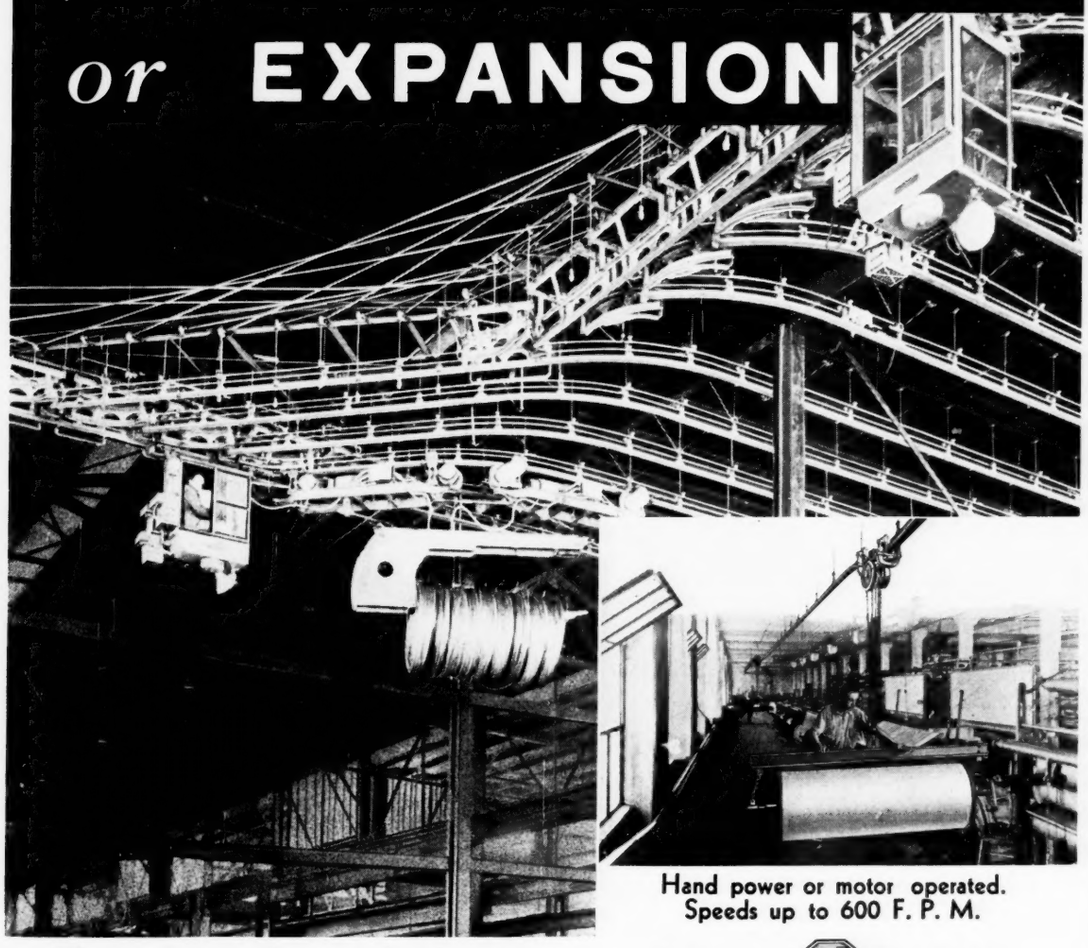
This new 6-cylinder truck at its remarkably low International price takes with it every guarantee that every International Truck carries. It is safeguarded by the nation-wide service that makes every International more valuable to its owner throughout the years of its life.

You are cordially invited to visit any International Branch or dealer and see this new half-ton International.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(Incorporated)
606 So. Michigan Ave. Chicago, Illinois

INTERNATIONAL TRUCKS

for REHABILITATION
or EXPANSION



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Albany, N. Y.	Charlotte, N. C.	Des Moines, Iowa	Evansville, Ind.	Los Angeles, Calif.	Newark, N. J.	Portland, Oregon	(See New Haven)
Atlanta, Ga.	Chattanooga, Tenn.	(See Davenport)	Fort Wayne, Ind.	Louisville, Ky.	New Haven, Conn.	Providence, R. I.	St. Louis, Mo.
Baltimore, Md.	Chicago, Ill.	Duluth, Minn.	(See Toledo)	Memphis, Tenn.	New Orleans, La.	Richmond, Va.	Syracuse, N. Y.
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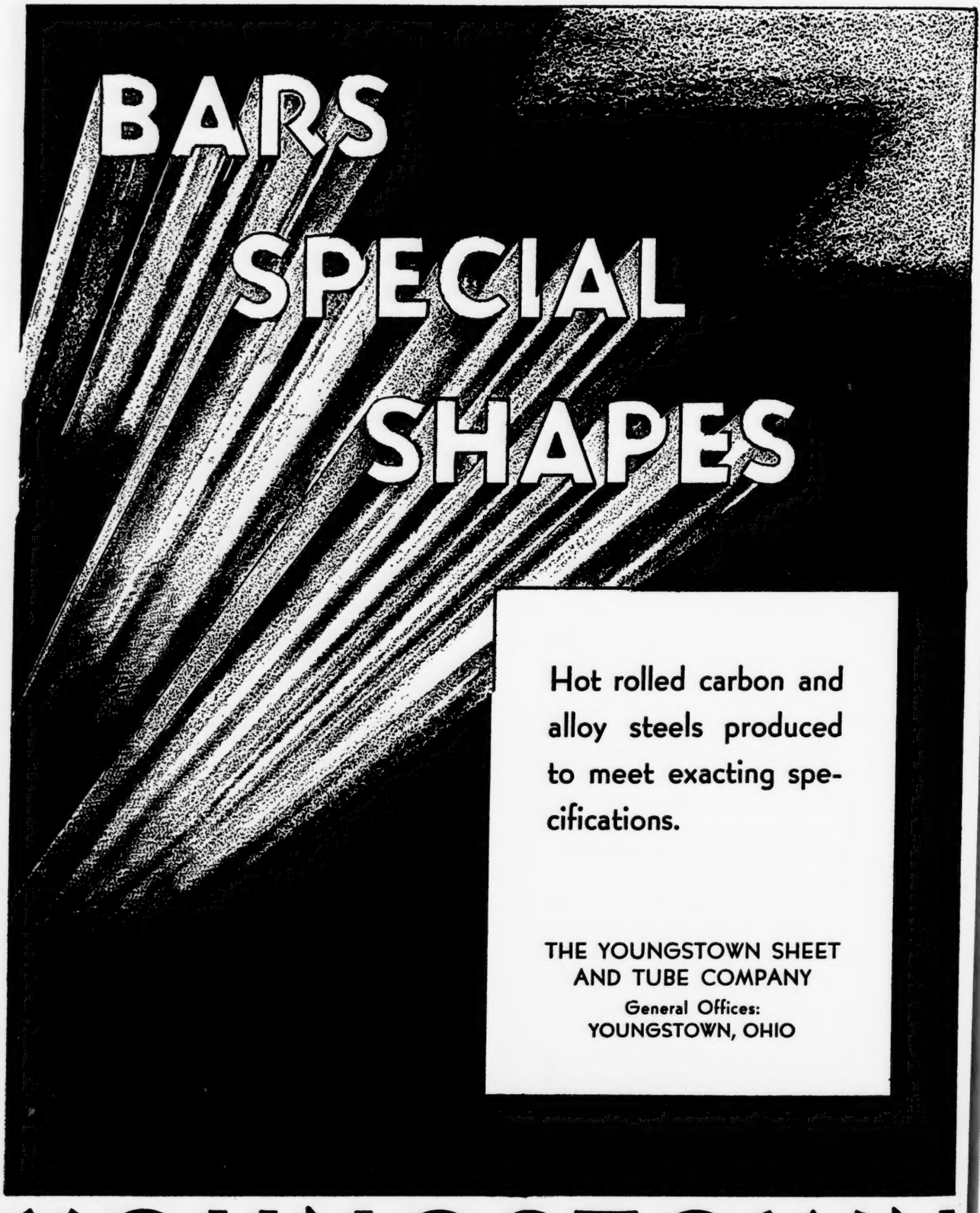
CLEVELAND
HAND OR ELECTRIC TRAMRAIL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THE YOUNGSTOWN SHEET AND TUBE COMPANY
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YOUNGSTOWN

Two Simple Rules . . .

That Mean Lower Pipe Costs for YOU

TWO simple rules will help you save money on pipe. First, determine the conditions under which the pipe must serve. Second, choose the kind of pipe that has a *proved record* for meeting those conditions best.

For the pipe uses such as those shown on this page, the superiority of Reading Puddled Iron Pipe is a *fact* that has been proved by a greater number of installations, over a longer period of years, than any other pipe can show. That is why you can install Reading Pipe in these places without costly guess-work, and without the expense of frequent repairs and replacements.

Today, Reading Puddled Iron Pipe is made of the same kinds of materials and by the same methods that have established Puddled Iron's unrivaled reputation for exceptional service. Where conditions point to the use of Reading Puddled Iron Pipe, be sure that you get it.

For Refrigeration

Reading Puddled Iron Pipe lasts longer than any other kind of pipe when used to convey brine or ammonia. This is attested by service records which show as much as seventy-five and eighty-five years of *actual use* for Reading Pipe in refrigerating systems. Where ordinary metal pipe lasts a few years in such systems, Reading Pipe lasts for *generations.*

For Oxidizing Atmospheres

In the presence of excess oxygen, Reading Puddled Iron Pipe quickly forms a protective film which effectively retards the penetration of corrosion. This action of the pipe is due to its fibrous structure and to the presence of thousands of filaments of non-corrodible silicate uniformly and minutely distributed throughout the pure iron.

For High Temperatures

The melting point of Puddled Iron is approximately 300 degrees (F) higher than that of steel. This is why Reading Pipe will withstand a given high temperature with far less deterioration than ordinary metal.

For Piping Corrosives

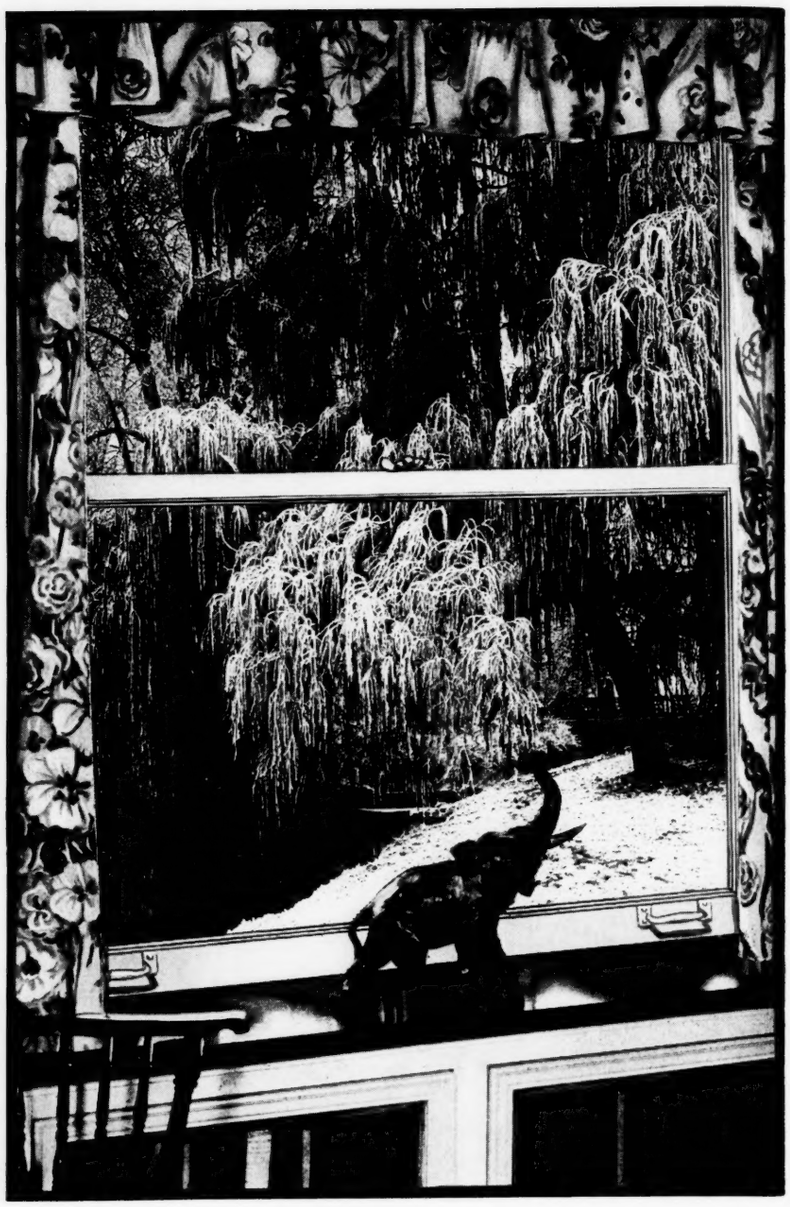
The incorporated silicate in Reading Pipe enables it to *deflect* the corrosion caused by alkalis and many acids parallel to the surface of the pipe. No metal, of course, is corrosion-proof under extreme conditions of this kind, but Reading Pipe justifies its use by the longer service it gives.

READING
PUDDLED IRON
SINCE 1848

READING IRON COMPANY
PHILADELPHIA

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron

PENNVERNON WINDOW GLASS faithfully transmits Nature's true colors



ONLY when seen in its true, natural colors does Nature appear in its full beauty. That's why it is so important that window glass should be able to transmit faithfully the colors of Nature.

Pennvernon Window Glass is far superior, in this respect, to other window glasses. For Pennvernon is able to bring Nature's colors into the home without changing or weakening them in any way. And Pennvernon's power to do this is permanent — it does not decrease with age or exposure.

Color transmission — this is one reason why Pennvernon Window Glass is so popular with architects, builders and homeowners. But there are others, too. Pennvernon is unusually clear, free from flaws, and therefore offers better vision. It is remarkably brilliant and lustrous in finish, and gives better reflection. And it presents greater resistance to wear and abrasion, which results in longer life, longer lasting beauty.

These points of superiority in Pennvernon are the natural consequences of the exclusive process by which the glass is made, and of the fineness and purity of the ingredients used.

Investigate this clearer, more beautiful glass. See its powers of color transmission yourself. Your examination of samples will show you the wisdom of specifying Pennvernon Window Glass. This glass is available in single or double strength, and and in thicknesses of $\frac{3}{16}''$ and $\frac{7}{32}''$, at the warehouses of the Pittsburgh Plate Glass Company in all principal cities, and through progressive glass jobbers and sash and door manufacturers. Write for samples to: Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pennsylvania.

PENNVERNON WINDOW GLASS

• Manufacturers Record •

MUSCLE SHOALS

THE MANUFACTURERS RECORD is opposed to Government competition with private business on which it depends for its financial life. It is opposed to any political move that would further disorganize business when it is fighting for its existence.

The revival of the Muscle Shoals question and the movement for Government operation of the power and nitrate plants bring to the fore many facts for the public and its representatives in Congress to consider. If the proposition can be worked out whereby the Government can sell or lease the properties to assure a sound development which would benefit that section and the country at large, well and good. The MANUFACTURERS RECORD is not unmindful of the benefits the whole Tennessee Valley would receive from the full development of Muscle Shoals. We want to see that section busy and prosperous if it can be brought about without jeopardizing existing investments or adding extra burdens on the taxpayers who must put up the capital and stand any losses that might be incurred in Government operation.

No one disputes the possibilities for large scale power development at Muscle Shoals. It is a question of cost and profitable return on the investment. To use all of the power that can be produced will necessitate its distribution over a wide area. If Government operated, it would mean the building of high tension power lines that would duplicate many existing facilities. Long distance transmission of electric power is expensive. The consumer at distant points would have to pay several times the supposed central station cost.

Local steam-electric and internal combustion engine-electric power units can now advantageously compete with hydro-electric power. Steam plant efficiency has steadily increased resulting in a corresponding drop in the cost of production. Gas pipe lines have been built to furnish cheap fuel to distant points for local private power and central station consumption. All of these factors must be considered, whether the Muscle Shoals property is leased to private interests or operated by the Government.

As to the use of Muscle Shoals for the production of fertilizer, the two plants built in 1919 are admittedly obsolete. Since they were built 14 years ago new methods have been developed which produce synthetic nitrogen below the cost that it can be made with existing facilities at Muscle Shoals with all of its power advantages. To make the fertilizer end profitable would require approximately $15,000,000 to modernize the two plants. It is stated that new modern synthetic nitrogen plants of equal capacity can be built for about what it would cost to modernize the old ones. If private interests cannot see their way clear to lease the property and operate it profitably on sound lines, how can the Government operate it without calling on taxpayers to foot the bill?

The important point is now raised as to whether additional plant capacity is needed for the production of nitrogen for peace or war. The situation has changed entirely from the days of the war when we were dependent on foreign nitrates. Our nitrogen plant capacity today is more than ample to supply the United States. We can produce annually over 600,000 tons of synthetic and by-product nitrogen against maximum peace-time requirements of 370,000 tons and estimated maximum wartime need of 150,000 tons additional. It has also been shown that in case of war we could easily produce 700,000 tons annually which is an excess annual capacity of 180,000 tons. These figures represent pure nitrogen. To convert them into nitrate of soda, multiply by six and one-quarter.

That is the record of plant capacity for the production of nitrogen in the United States. Annual production in these depression times is something else. Our iron and steel and gas industries produced in 1932 about 75,000 tons of by-product nitrogen, and our synthetic nitrogen plants produced about 90,000 tons—a total of 165,000 tons. In addition, due largely to depreciated currencies abroad, some 350,000 tons of sulphate of ammonia were imported and sold at prices substantially below the domestic price in the face of a consumption below domestic production. Only 60,000 tons of Chilean nitrate were imported during 1932 as compared with 617,000 tons the previous year.

Annual consumption in the United States of chem-

ical nitrogen in 1932 was 200,000 tons for all purposes and at the end of the year we had a surplus of about 130,000 tons. In view of these facts, where is the need for the Government to go into the production of nitrogen? Production at lower cost, say the Government operation advocates is possible at Muscle Shoals, which is problematical. During the past year there has been a substantial decline in the price of all fertilizer materials and mixed fertilizer, in the former 12 per cent and the latter 15 per cent less. The average of three of the most commonly used grades of mixed fertilizers is now 30 per cent of the 1919 price.

Francis P. Garvan, president of The Chemical Foundation, the non-profit making organization which has done so much for the advancement of chemical and allied science and industry, states that ten American plants are producing nitrate from the air and stand ready to produce the entire nitrogen necessities of this country in peace and war, for agriculture and munitions. He asserts that the American farmer today is getting his nitrates for $22 a ton, against $36 a ton today paid by the German farmer, and against the former price of $90 a ton during the war and $48 a ton in 1926. We also have the phosphate rock and the potash. We are the only country in the world which has all the necessary ingredients for fertilizers for its soil.

Government (taxpayers) money invested in sound self-liquidating private projects to stimulate business and employment is wise at this time. If the Muscle Shoals development can be worked out along such lines the stimulation and encouragement given to the whole Tennessee Valley would spread throughout the country. It is to be hoped that every angle of the Muscle Shoals question will be thoroughly considered in the light of scientific and mechanical advances of recent years as well as of the ample producing capacity of private plants. We say this having in mind the interest of that great section of the South ultimately to benefit from Muscle Shoals possibilities of development, the interests of the American farmer, and of private industry in receiving fair treatment at the hands of its Government which it helps to support.

BUY AMERICAN QUALITY PRODUCTS

"It took three years of violent price appeal to make people forget quality. It may take equally long, with sound advertising and promotion, to bring quality back to its rightful place of supremacy. But it is being done," says P. A. O'Connell, president of the National Retail Dry Goods Association. This organization has been sponsoring the "National Quality Movement," which is beginning to secure results in the form of restored confidence and a more profitable basis for merchandising. Support has been given by merchants and manufacturers who are putting into practice the quality they are preaching, and are increasing their business by doing so.

Consumers are beginning to realize that low prices often mean shoddy goods and that they have paid dearly for their supposed bargains. After three years, the old surplus of quality goods has about vanished. The bargain days from distressed sales of surplus stocks of pre-depression make must be almost over. Not only has the consumer been the loser in the cut-throat competition for sales volume, but workers', manufacturers' and distributors' earnings have been sacrificed.

Quality needs no defense. It means value to the user. It means repeat orders to merchant and manufacturer. American quality products are not surpassed by those made elsewhere. The National Quality Movement and the Buy American Movement are essentially in the interest of the American consumer. Both are to protect American industry and labor. Cheap, inferior goods imported from abroad, as well as inferior domestic goods, undermine the capital investment of American industry and the buying power of American workers.

IMPORTS THAT UNDERMINE

THE closing of pottery and glass works by importations from countries of extremely low wage scales and depreciated currencies, writes Ross C. Purdy, secretary of the American Ceramic Society, affects large employing industries in New Jersey, Pennsylvania, West Virginia, Virginia, Maryland, New York, Ohio, Indiana, Illinois, Missouri, Washington, California, and Oklahoma. In addition, these importations affect the states which furnish the clay, the coal, the straw, and the containers. They affect the transportation interests, and the support of schools which are dependent upon industrial taxes in many sections.

The china and pottery industry normally employs 17,500 workers directly. Now 5000 of these are entirely jobless and 11,000 more get only 2½ days a week work at a 20 per cent wage reduction per day. With the clay and coal miners and farmer straw producers dependent on the ceramic industry, 100,000 persons are affected.

In normal times only 50 per cent of the dishes used here are Made-in-America. Today imports, chiefly from Japan, are up 11 per cent while production in the United States is 30 per cent less than in 1931. The average wage of American potters is 70 cents an hour. The average wage in Japan is 6 cents an hour.

The largest loss in business in glass has been on electric light bulbs, lantern globes, and chimneys. The loss in business on lamp chimneys was 43 per cent, on globes 43 per cent, on bulbs 41 per cent, and on tubing for production of bulbs 33 per cent.

The great clay producing section of Georgia, which is said to have the largest kaolin deposits in the world, has been seriously affected by the importations of English china clay since that country went off the gold standard in October, 1931. English china clay is sold f.o.b. port of shipment, the value and shipping charges being paid in depreciated English currency.

The shrinkage amounts to about 35 per cent and this competition has been difficult for American producers to meet. Georgia reached its maximum clay production in 1931 and the decrease in output since is largely due to cheap imports.

A FACTOR IN AMERICAN PROGRESS

THE automobile being what it is—a necessity in our daily lives, and America in her march of progress in the past having availed herself of this time saving means of promotion of business and better living, it is well to review some of the facts that make the great automobile industry such a contributing factor to our commerce, as well as our welfare.

Undoubtedly the progress of the automobile industry will mean progress in all American industry. During this winter $50,000,000 has been spent by motor manufacturers for research and production of the models on display, and is tangible evidence of the faith which this industry has in the future of America.

It is the largest purchaser of strip steel, bars, sheets, malleable iron and alloy steel, as well as of gasoline, rubber, plate glass, nickle, lead, mohair and upholstering leather. It furnishes a direct outlet for tremendous quantities of cotton, lumber, paints, copper and almost every material resource of the country. There were carried on American railroads in 1932, 2,570,000 carloads of automotive freight.

As America's first industry, automobile manufacturing furnishes employment direct and indirect to nearly 4,000,000 people—one out of every 11 gainfully employed.

Engineering ingenuity, manufacturing skill and planned selling have made the luxury product of a decade ago of fundamental importance not only to business, but families and individuals with modest income.

Much publicity is given to the number of automobiles manufactured and in use. Facts as to the motor truck industry, which is of prime necessity to business, are not emphasized so often. There are now 3,231,000 motor trucks in use in the United States, or more than one-eighth of the 24,276,000 motor vehicles registered in 1932. About 237,500 motor trucks were manufactured last year. They represented a wholesale value of $138,000,000.

Motor truck design and performance have kept pace with the advance made in recent years by the builders of pleasure and business automobiles.

As engineering achievements modern motor trucks are remarkable in their development. The present day silent engined, power braked, pneumatic tired vehicle of commerce made to meet every conceivable need is filling effectively a very large and constantly growing place in our national life.

GEORGIA

A LITTLE English colony was established in Georgia February 12, 1733. It was later a plantation region, growing cotton, rice and other staple crops of the times. The chief concern of its people was in securing food, clothing and shelter.

All the primary resources of what later was to be termed the "Empire State of the South" were there—climate, soil, forests, stone, clays and minerals. Limited knowledge and the crude tools available could only utilize a small part of the wealth nature had provided.

With the advance of the world in 200 years what are now necessities were then luxuries and wealth as measured today in material things was not dreamed of when Georgia became a state, or for that matter for more than a century afterwards.

Articles elsewhere in this issue by Governor Talmadge of Georgia, P. S. Arkwright, president of the Georgia Power Co., and Dr. Andrew M. Soule, president of the State College of Agriculture and Mechanic Arts, cover in detail the wealth and productive power of Georgia. They emphasize the varied extent of its activity in agriculture, manufacturing and commerce, and refer to the manifold opportunities for further development that is destined to take place.

This is Georgia's 200th anniversary year, and, while like other states it has been feeling the effects of the business depression, when we compare the Georgia of today with conditions of Colonial times, and especially with conditions during the Civil War and the Reconstruction period which followed, we see a contrast that should make every Georgian proud of what has been accomplished and eager to press forward toward greater things.

Instead of being entirely dependent on the soil, Georgia is engaged in manufacturing, mining and hundreds of varied lines of endeavor that go to make up our modern business structure and civilization.

By 1790, when the first census of the United States was taken, Georgia reported a population of 82,548 and a total commerce of $491,000. By 1860, the population of Georgia had increased to 1,057,000 and the estimated wealth of the state was $645,000,000, or almost one-tenth of the total wealth of the entire South before the Civil War. Even at that time, 127 years after the settlement of Georgia, her people were not aware of the great possibilities of development. They were later to see tremendous expansion of lumbering and naval stores, the development of rail transportation, the building of huge textile mills and in the present generation the growth of an electric power industry which made possible a remarkable expansion of manufacturing of all kinds which has taken place. In later years Georgia took up the development of its vast mineral resources, among them bauxite and kaolin. The clay belt extending across Georgia is one of the world's greatest deposits.

The progressive spirit of her people is recognized everywhere as a tremendous asset in the development of the whole South. "Forward Georgia" is a slogan that epitomizes it.

GEORGIA BUILDS FOR THE FUTURE

By

Eugene Talmadge

Governor of Georgia

GEORGIA has the greatest natural resources of any Southern State. It is true that the primal forests which the first settlers found have disappeared. But, when we consider the tremendous deposits of minerals and clays, and almost unlimited possibilities of agricultural production, we realize that the loss of the forests still leaves us with greater natural resources than most countries have, even with their forests.

Georgia boasts not only unlimited possibilities as to the amount of farm products that can be raised, but on account of its altitudes, which begin around 3000 feet above sea level in northern Georgia and extend to the sea on the southwest, Georgia enjoys a varied climate that enables it to produce the greatest variety of crops of any state in the Union, with the possible exception of California.

Unlike a great many other states, Georgia has refrained from issuing bonds. The State bonded debt at this time is in round figures $5,000,000, but this is the unpaid balance of a bond issue of many years ago.

With one of the best deep water harbors on the Atlantic coast, with a system of paved highways to be completed within the next few years, and with rail connections to all principal points north, south and east, there is no reason why Georgia should not take the lead in re-establishing its economic and financial standing and again be the proud "Empire State of the South."

Public sentiment is demanding a readjustment of freight rates and rates of other public utilities in keeping with the reduced returns on farm products and manufactured products.

An adjustment of rates that will permit the transportation of our commodities to the centers of population at a reasonable cost will enable the landowners to realize a fair return on their investments and will encourage and enable them to furnish lucrative employment to the thousands of idle people now out of employment who are not needed in manufacturing industries.

The people of Georgia are determined to reduce the cost of government, both of the State and all its subdivisions, as was undeniably demonstrated at the last general election.

While the tax rates in Georgia are not as high as in some other sister states, the amount of taxes assessed on the people is out of keeping with the changed financial condition of the country, and must be substantially reduced. This can only be done by a reduction in the cost of government.

The elimination of all unnecessary activities of government and the enforcement of economic measures of all branches was the main issue in the past election. And, no doubt the Legislature meeting this month will take steps to put these principles into effect in its consideration of vital questions affecting the welfare of the state.

Georgia is getting back to bed-rock in government, and the attention and thought of its public leaders are directed to the three most important questions of the day; viz.:

1. Establishment of conditions enabling every man and woman to make an honest living.
2. Education of future citizens by means of the common school system.
3. Building and maintaining all highways throughout the state.

The first of these questions, of course, embraces fair business conditions, fair rates of public utilities, reasonable markets, and reasonable taxes.

With the mandate of the people given them at the ballot box in September, we do not doubt that laws will be enacted reducing the burden of taxes, reducing the expenses of government, and that in the near future rates of public utilities will be reduced to a pre-wartime basis and that Georgia will within the next twelve months begin her march back to her rightful place as the "Empire State of the South."

Basic Factors in Georgia's Economic Advance of Past 30 Years Afford Foundation for Future Growth

(Compiled from Blue Book of Southern Progress)

Total Area, 59,265 Square Miles; Land, 58,725 Square Miles; Water, 540 Square Miles

	Census Years		
	1900	1910	1930
Population	2,216,000	2,609,000	2,908,000
Property, estimated value	$936,000,000	$2,163,000,000	$4,000,000,000
Property, assessed value	$433,000,000	$766,000,000	$1,303,000,000
Manufactures:			
Products, value	$94,000,000	$202,000,000	$722,000,000
Installed horsepower	136,000	298,000	642,000
Mineral products, value	$3,448,000	$6,048,000	$12,831,000
Public Utility Output:			
Electricity, kilowatt hours	.....	142,000,000	937,000,000
Cotton Manufacturing:			
Products, value	$18,000,000	$48,000,000	$212,000,000
Spindles, number active	816,000	1,871,000	3,152,000
Looms, number active	19,000	39,000	40,000
Cotton consumed, bales	304,000	530,000	1,108,000
Cottonseed Oil Mills:			
Products, value	$8,000,000	$23,000,000	$20,000,000
Furniture Made, value	$1,273,000	$2,000,000	$7,000,000
Lumber Cut, board feet	1,308,000,000	1,041,000,000	753,000,000
All Land in Farms, acres	26,392,000	26,955,000	22,078,000
Improved Land, acres	10,616,000	12,298,000	11,426,000
Number of Farms	225,000	291,000	255,000
Value Farm Property	$228,000,000	$580,000,000	$683,000,000
Value Farm Land	$138,000,000	$370,000,000	$394,000,000
Farm Products, value	$101,000,000	$257,000,000	$298,000,000
Farm Crops, value	$86,000,000	$217,000,000	$179,000,000
Farm Crops, acres	8,267,000	9,661,000	9,453,000
Cotton, bales, number	1,233,000	1,767,000	1,593,000
Tobacco, pounds	1,106,000	1,486,000	104,538,000
Corn, bushels	34,119,000	51,982,000	36,036,000
Wheat, bushels	5,011,000	1,480,000	273,000
Oats, bushels	7,000,000	7,353,000	5,043,000
Cattle, number	899,000	1,080,000	773,000
Sheep, number	336,000	188,000	38,000
Swine, number	1,424,000	1,784,000	1,299,000
Horses, number	127,000	120,000	36,000
Mules, number	207,000	295,000	340,000
Banking Resources	.....	$165,141,000	$435,631,000
Paid-in capital	.....	$27,161,000	$39,395,000
Individual deposits	$33,125,000	$82,457,000	$294,727,000
Savings deposits	$17,208,000	$29,200,000	$133,233,000
Clearing House Exchange	$400,900,000	$991,300,000	$2,807,000,000
Life Insurance Written	$27,771,000	$67,969,000	$368,624,000
Total in force	$106,327,000	$306,725,000	$1,372,000,000
Railroad Mileage	5,652	7,056	6,678
Motor vehicles, number	.....	19,000	342,000
Highway Expenditures	$800,000	$3,000,000	$23,874,000
Public School Expenditures	$1,980,000	$4,419,000	$18,581,000

WHERE OPPORTUNITY BECKONS

By

Dr. Andrew M. Soule
President Georgia State College
of Agriculture and
the Mechanic Arts
Athens, Georgia

TRIBUTE is not always exacted by force of arms. Every citizen pays some of it in one form or another. The amount and extent of such payments depend largely upon the initiative of the community concerned. Naturally, there are extenuating environmental conditions which also exercise a major influence upon this proposition.

Here, in Georgia, we still pay out $50,000,000 a year of our hard-earned income to other sections for those products with which we should be able to supply ourselves upon a satisfactory and efficient basis. Other states may pay more or less than Georgia; but, in any event, it is clear that in the aggregate the South pays out a volume of tribute to other sections of astounding proportions. This constant drain upon our resources explains many of our present financial difficulties. Of all people in the world, the farmer who would prosper and succeed must depend as largely as possible on the balancing up of his program of production so that he may be able to retain in his possession the largest possible amount of money which he produces.

In round numbers, the South contains about one-third of the population of the United States. The land area devoted to farming is also very extensive. Yet, this vast section is providing only about six per cent of the creamery butter, four per cent of the canned milk, three and a half per cent of the cheese, five to six per cent of the meat, and fourteen per cent of the dressed poultry consumed in the United States. These figures are, of course, relative and approximate; but they are nearly enough correct to provide the basis upon which to predicate an adequate statement of the condition which now exists. What has been said of livestock products applies with equal force to our requirements of hay, various types of grain, commercial foodstuffs, Irish potatoes, canned goods, and even fresh fruits and vegetables in many localities.

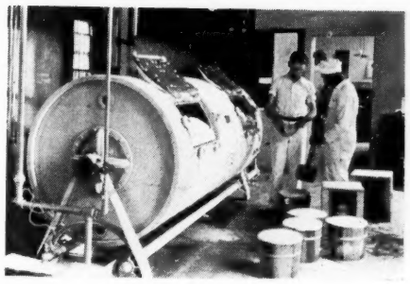
Is there any reason why this condition should continue? No, provided we do certain things. First of all, we must inaugurate a new program of thinking and procedure. We must get away from the one-crop idea. We must develop a conscious appreciation that there is just as much money to be realized out of the production of animals and animal by-products, and the canning and preserving of fruits and vegetables in the South as elsewhere in this country. This, of course, will entail radical changes in our present plan of farm operations. It necessitates the development of a soil-building program, the maintenance of a satisfactory crop rotation, the support on every farm of enough animals to supply the needs not only of the individual owner but at least one urban family.

The inauguration of this plan will call for the elimination of all marginal and waste land from cultivation and their reforestation as promptly as possible. It will also necessitate the intensive operation of the land, its better management and fertilization, and more particularly the use of greater amounts of green crops and animal by-products for increasing its supply of humus and nitrogen. Fortunately, it does not require nor necessitate in any way the curtailment of the volume of cotton, tobacco, hay, grain, fruit, nut or truck crops now grown unless that be considered a desirable economic procedure to follow.

With very little additional effort, we can make our lands yield from 20 to 40 per cent more per acre than they are now producing. This, of itself, will insure the farmer making a profit from his farm operations instead of the loss recorded during the past three years. By mixing brains with common sense, he can also market his crops in an orderly and circumspect manner and thus further stabilize his income.

What do we need to do to bring about this supremely important and essential change in the present economic status of our industries and Southern agriculture?

Small Local Industries Using Farm Products and By-Products Can Be Made a Success by Those Who Predicate Programs of Development on a Sound and Efficient, Scientific Basis



A Commercial Creamery
There is opportunity for the establishment of more creameries and other types of small local industries in all parts of the South than now exist

Merely the setting up and maintenance on the part of our local farmers and business men of adequate community enterprises, such as creameries, condensed milk plants, cheese factories, local abattoirs, meat-curing plants, assembling and grading centers, canning factories, peanut, pecan, and cane syrup processing plants. The cost of establishing small units of these individual enterprises is not great, and hence there is an abundance of capital in every community in spite of the existing depression to provide the funds needed for the development of this program.

Why hesitate, therefore, to reclaim and keep within our boundaries a part of that enormous tribute we have paid continuously for over fifty years to other sections not as greatly favored by physical, climatic, soil, social, and consuming facilities as our own?

The answer is our neglect of fundamental education along the lines indicated. Thousands of enterprises of the kind outlined have been started in the past and failed. It will also be true of the future until we develop a new motivation in the hearts of our people based on a South-wide scheme of vocational and applied education which we have so far failed to appreciate and utilize as we should. This statement is merely made to prevent the development of undue enthusiasm upon the part of many, thereby leading them into the mistaken notion that new enterprises can be created by "rule of thumb" and maintained out of the imagination.

Remember, that success only comes to those who predicate their programs of development on a fundamentally sound and efficient, scientific basis. Just in proportion as we achieve the objective ends outlined will we reduce the present terrific drain upon the resources of our people and our land and bring about the rehabilitation of agriculture and industry upon a sound and enduring basis. Until we achieve the goals set out there can be no ushering in of a permanent era of prosperity.

Let us stop paying tribute.

GEORGIA'S PART IN NATIONAL PROGRESS

"I am attracted to Georgia for many reasons, which may be summarized under four heads—climate, natural resources, its people, its future."—Franklin D. Roosevelt.

By

P. S. Arkwright

President, Georgia Power Co., Atlanta, Ga.

GEORGIA this year is celebrating the 200th anniversary of her founding. Two centuries have elapsed since the day, February 12, 1733, when General James Edward Oglethorpe landed his little party of 116 English settlers on Yamacraw bluff, overlooking the Savannah river, and founded the last of the 13 British colonies in the new world.

The colony, later the state, of Georgia has had a distinguished history and has contributed in no small part to the progress of the nation. Great as has been Georgia's industrial advancement, her as yet undeveloped, or only partially exploited natural resources, give reason for hopes and expectations that far greater strides will be made in the future.

In the early days, of course, cotton was king. Up to the time of the Civil War the plantation system flourished in Georgia, as in the other Southern states. The mill and factory, as they existed in the northern states, were almost unknown in Georgia, as the cotton was shipped to New England or abroad and there manufactured into cloth.

Then came the war, which resulted in a vast economic upheaval for the whole South. The slaves were freed, the wealth of an empire was wiped out by four years of disastrous conflict. The northern states had a commanding lead in all forms of industry, with a century of experience behind them. The South had nowhere to turn for its livelihood except to the soil again.

But other forces were at work, forces that brought Georgia's rich natural endowments to the attention of the nation and resulted in the transformation, now under way, from an agricultural to an industrial economic order.

Let us consider first what these natural resources are.

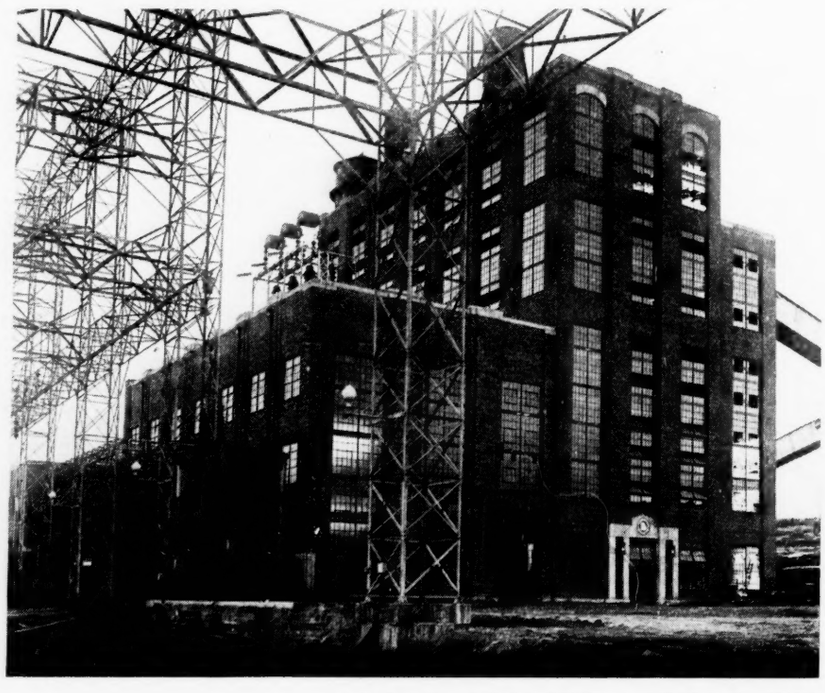
Georgia is the largest state east of the Mississippi River and is twentieth in size in the United States. Its area, 59,265 square miles, comprises 58,725 square miles of land surface and 540 square miles of water. Its sea coast, on an air line, is more than 100 miles long. The greatest length of the state is 320 miles, from north to south, and its greatest width is 225 miles.

The state's altitude varies from sea level to about 5000 feet in the northern part. It is divided into three distinct geological sections. The northern part is mountainous, being traversed by the Blue Ridge Mountains of the Appalachian chain. Middle Georgia, known as the Piedmont or foothills region, consists of broadly rolling uplands, traversed by deep, narrow valleys through which numerous rivers make their way to the coast. The section south of a line drawn from Augusta through Milledgeville and Macon to Columbus is practically level and is called the Coastal Plain. It comprises about three-fifths of the state.

Bordering on the Atlantic Ocean and the Gulf Stream, the state has a mild climate, the mean temperature being 62 degrees, with an average temperature of 47 degrees in winter and 77 degrees in summer. The climate is so favorable that farming, mining and industrial activities may continue throughout the year, without interruption from excessive heat in summer or cold in winter. The average rainfall is 51 inches and the growing season runs from 260 days a year in South Georgia to 230 days a year in North Georgia.

Georgia occupies a strategic position among the Southern states from the standpoint of transportation and markets. The Appalachian Mountains parallel the Atlantic coast from Pennsylvania to Georgia and form a natural barrier between the Atlantic coastal region and the Mississippi valley. Railroads, in locating a route westward, formed a junction point at what is now Atlanta and were responsible for the founding and continued growth and development of the city. In recent years, the course of air transportation has largely followed the railroad lines and Atlanta has become the center of air travel for the Southeastern states.

It will be noted that a straight line drawn between Chicago and Miami and one between New York and New Orleans will intersect practically at Atlanta, a significant fact, for the location has given to the city and to Georgia fast railway service in four directions and



Plant Atkinson

A 100,000 horsepower steam-electric generating station of the Georgia Power Company, which was completed and placed in service in October, 1930. It is located on the Chattahoochee River 10 miles from Atlanta

Goodrich-Martha Mills in Georgia
Here cotton is converted into fabric for automobile tires. Approximately 60 per cent of all the tire fabric used in the United States now is made in Georgia

made Atlanta the logical distribution center of the Southeast.

In most industries, labor is the largest single item of operating expense. Georgia offers distinct advantages in the quality of its labor supply. Its mild climate and comparatively small centers of population combine to make living costs low. The laboring people are native born, of native parents and are endowed with a high degree of natural intelligence.

Cotton is still the most important agricultural crop and the most important raw product of the state, the crop amounting to 1,000,000 bales or more a year. While the value has dropped sharply within the last few years, in common with all other commodities, it is still the chief source of revenue for the farmers of the state. Among other important farm products are corn, tobacco, hay, peanuts, peaches, sweet potatoes, oats, sugar cane, watermelons, poultry and eggs, livestock and dairy products.

The mineral deposits of Georgia are both extensive and varied. Thirty-four different kinds are produced in commercial quantities. The most important minerals and mineral products are brick and tile, marble, Portland cement and bauxite, granite, Fuller's earth and manganese, clays, lime and limestone, slate, sand and gravel, barytes, iron ore and ochre, asbestos, coal and coke, mica, talc and soapstone, gold and silver.

Georgia has 23,000,000 acres of forest land. Of 163 varieties of trees found in the state, 53 are useful for timber. An interesting experiment now being carried on in Georgia is the production of paper from pine wood pulp.

The fishing industry of the Georgia coast gives employment to about 7000 persons and the value of the products is from $7,000,000 to $10,000,000 annually.

This is a brief list of the varied natural resources, many of which were almost untouched from the time of the founding of the state two centuries ago until within our own generation. There was one thing lacking, one thing needed by all industries alike in the utilization of these resources. That thing was power.

At the start of the industrial age, when steam was the chief source of power and factories crowded into a few large industrial centers, Georgia could not compete with other sections for the location of factories. But the development of long distance transmission of electric power gave to Georgia its opportunity. Georgia had abundant power resources in its streams, and distribution of this power over the electric lines quickened the industrial life of the entire state. Industry could spread out and it began to do so. With this decentralization under way, Georgia's many advantages quickly attracted national attention and a new period of growth had been started.

Development of Georgia's great resources of hydro-electric power began on a major scale with construction in 1913 by the Georgia Power Company of the Tallulah Falls plant, located in the mountains of Northeast Georgia. The capacity of this plant is 108,000 horsepower. Later developments in that section and in other parts of the state by other companies which have since been incorporated in the Georgia Power Company have resulted in a system whose generating capacity exceeds 600,000 horsepower and whose transmission lines cover three-fourths of the state.

Georgia's own electric power resources and the fact that the state is the center of an interconnecting transmission system covering most of the Southeastern states, give the state assurance of an ample supply of power at all times, for any present or future industrial needs. These resources also enable Georgia to offer power at rates which compare favorably with those in any section of the nation.

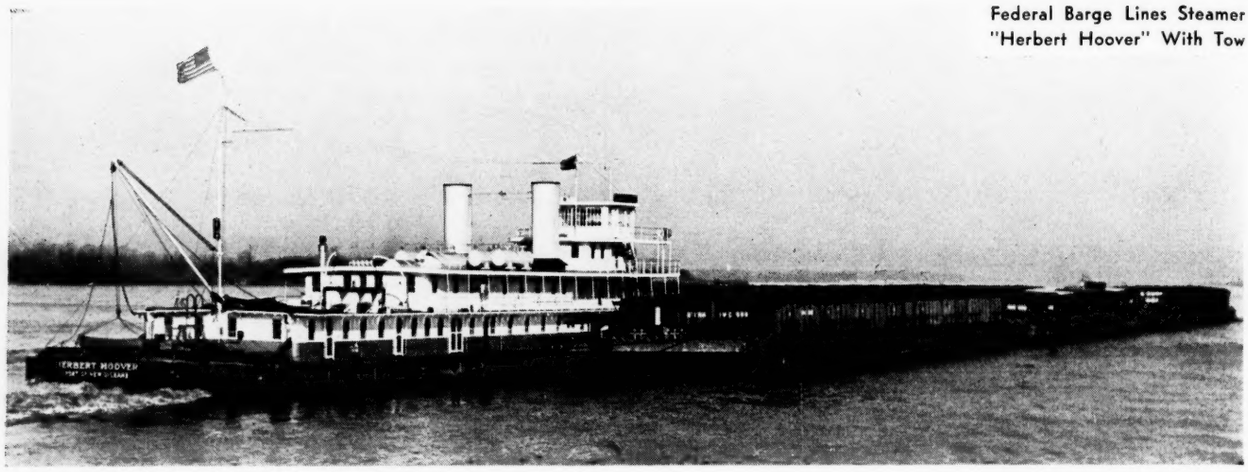
It is this availability of abundant, cheap electric power that has contributed largely to Georgia's transformation from an agricultural to an industrial state. The value of Georgia's manufactured products now exceeds by a large margin the value of her agricultural products. What this means in increasing the wealth of the state is obvious.

The manufacture of textiles is the leading industry. But foundry products, oil mill products, furniture and fixtures, fertilizers, flour and corn meal, lumbering, candy, soft drinks, naval stores, ceramic products and scores of others are made in Georgia.

President-elect Franklin D. Roosevelt has epitomized Georgia in two forceful sentences which may well be quoted here:

"I happen to have the good fortune to know almost every state in the Union and I am very certain that not one of them holds within itself a greater future than the state of Georgia. I am attracted to Georgia for many reasons, which may be summarized under four heads—climate, natural resources, its people, its future."

A 40,000 Spindle Thread Mill
Erected at Austell, Ga., by the Clark Thread Company of New Jersey



Federal Barge Lines Steamer "Herbert Hoover" With Tow

DEVELOPMENT OF INLAND WATERWAYS SYSTEM

By

Colonel Clarence B. Douglas

THE development of the inland waterways system including the Mississippi, the Missouri, the Ohio, the Illinois, the Cumberland, the Tennessee, the Red, the Arkansas, the Ouachita and the Warrior Rivers with their Gulf terminus and the active construction work now being done on the Intracoastal Canal from New Orleans to Point Isabel is bringing about a revolution in the trend of commerce in those states between the Alleghenies and the Rockies and between the Canadian border and the Gulf. With the completion of this inland waterways system to a uniform depth for the rivers of nine feet the Gulf ports will become increasingly important with the development of agriculture, industrial plants and the increased production of raw materials in the Valley States.

Intracoastal Waterway and Its Relation to the Mississippi Valley System

The general trend of business for many years from the Valley has been east and west and the completion of the improvements of the Valley system of waterways will change this trend and result in the building of important seaport cities along the Gulf.

At the present time there has been reduced to practical navigation the Ohio River for a distance of 1000 miles from Pittsburgh to Cairo; the Mississippi River with a 9 ft. channel from New Orleans to St. Louis 1159 miles, and a 6 ft. channel now in process of being deepened to a 9 ft. channel from St. Louis to Minneapolis, a distance of 685 miles. A canal and lake system from New Orleans to Mobile 160 miles and the Warrior River from Birmingport (a suburb of Birmingham) to Mobile, a 9 ft. channel 419 miles. The Illinois River from Grafton to Peoria, a 9 ft. channel 202 miles. In the spring of 1933 the Illinois River service will be extended into Chicago and the Great Lakes from Peoria with a 9 ft. channel, this work now being substantially completed and in April, 1933, scheduled operations will begin from St. Louis to Kansas City up the Missouri River, a distance of 409 miles. Preliminary surveys and some work has been done on the Cumberland, the Tennessee, the Arkansas, the Red and the Ouachita Rivers but little commerce at this time is moving on these streams.

The Inland Waterways Corporation is operating the Federal Barge Lines and this service is now operating on the Illinois, the Mississippi through Lake Ponchartrain from New Orleans to Mobile up the Warrior River to Birmingport and it is this service which will be extended into Chicago and the Great Lakes and into Kansas City in 1933.

The Inland Waterways Corporation has a personnel of 6500 employes and an investment in floating equipment and terminal facilities in excess of $24,000,000.

Modern terminals are maintained at Minneapolis, St. Paul, Dubuque, Rock Island, Burlington, Peoria, St. Louis, East St. Louis, Cairo, Memphis, Helena, Mobile, Holt and Birmingport for the Federal Barge Lines and other barge lines maintain terminals at Pittsburgh, Cincinnati, Evansville, Memphis and other Ohio and Mississippi points.

The Mississippi Valley Barge Line is operating extensively on the Ohio and Mississippi River from Cincinnati to New Orleans and the Jones & Laughlin Steel Corporation of Pittsburgh operate a private line from Pittsburgh to their immense supply yards at Memphis. Other privately owned lines include the

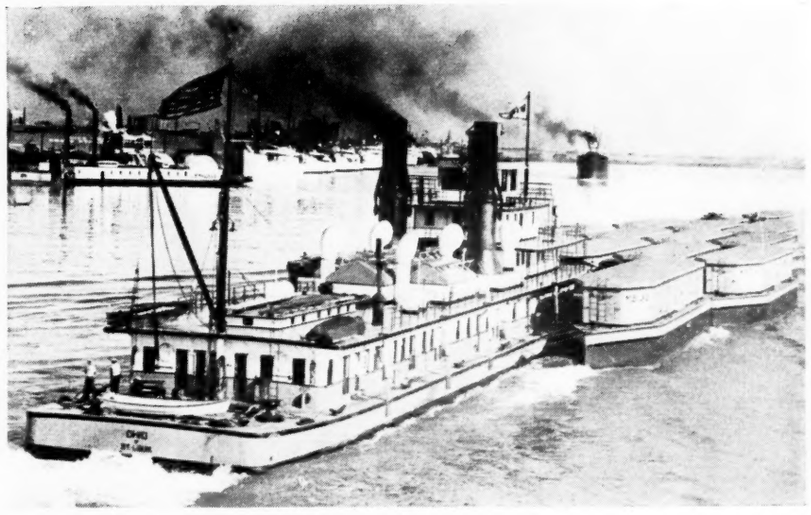
American Barge Line, operating from Pittsburgh to New Orleans; the Union Barge Line from Pittsburgh to Memphis, and the Memphis terminal of the Spang-Chalfant Company.

For the year ending June 30, 1932, the Federal Barge Line handled at the New Orleans port southbound—21,255 tons of bulk grain; 228,945 tons cotton; 25,362 tons soy beans, and 20,003 tons tobacco and northbound—sugar 408,956 tons, a total of 895,821 tons in addition to which for the same 12 months 50,409 tons of coffee were delivered to the Barge Line for distribution by water transportation north. For the 1931-32 season 1,100,000 bales of cotton were handled on the River into New Orleans.

The Gulf port cities of Mobile, New Orleans, Houston, Galveston and Corpus Christi are receiving great benefits from the development of the Southern waterways and the increasing export and import business and with the improvement of smaller Texas, Louisiana, Alabama and Georgia rivers, additional seaports will be developed along the Gulf Coast.

The Intracoastal Canal which has been substantially completed from New Orleans to Corpus Christi and which will be extended to Point Isabel at the mouth of the Rio Grande will be of immense benefit to Texas and Louisiana as it will put these states in direct waterway connection with the Mississippi Valley system of inland waterways and will open a market in excess of 10,000,000 people to the Rio Grande Valley country and Southern Texas and Louisiana for water borne commerce.

An important project now receiving considerable attention and which the indications are in the comparative near future will have the approval of the United States Army Engineers is a ship channel across the Upper Peninsula of Florida connecting the Atlantic ocean to the Gulf resulting in shortening the Atlantic and Gulf Service by almost 1000 miles. Preliminary surveys have been made for this ship canal and if and when it is constructed it will connect the Intercoastal Canal system along the Atlantic seaboard with that of the Gulf of Mexico reaching to Point Isabel giving a land-locked system of waterways for all the year transportation service which will be of inestimable value to South Atlantic and Gulf border states.

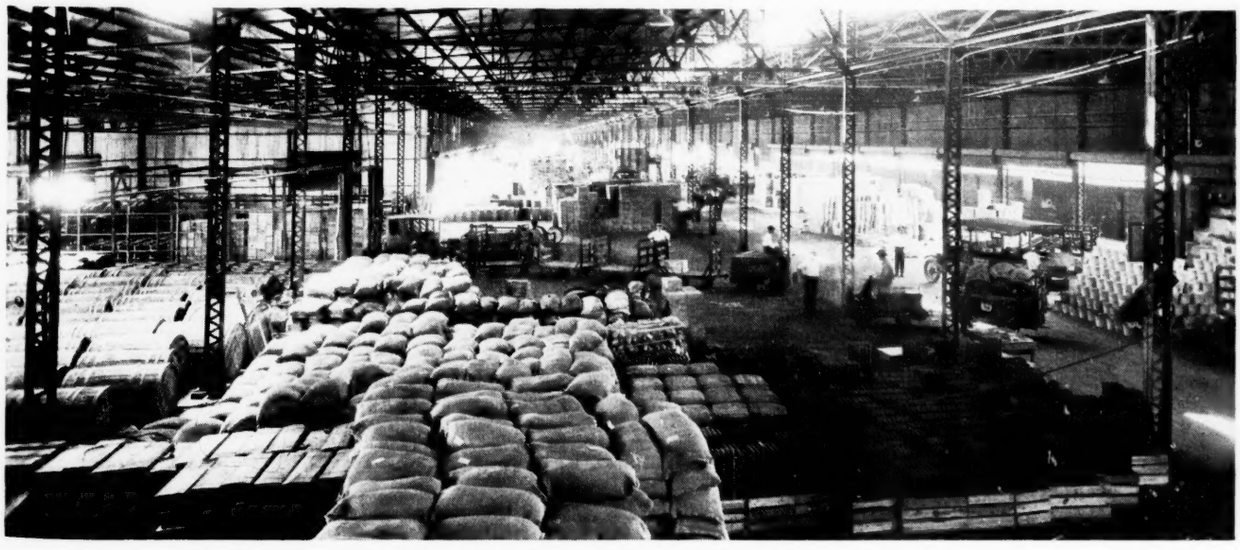


The "Ohio" Towboat of the Mississippi Valley Barge Line

At the Annual convention of the Intercoastal Canal Association held at Lafayette, La., last November Judge Mansfield of Texas, Chairman of the Rivers and Harbors Committee of the National House of Representatives, announced it to be the policy of his Committee to report and urge the passing of a River and Harbor bill at each session of Congress, the reports to be made only on those projects which had received the approval of the United States Army Engineers. Judge Mansfield visioned a system of connected-up waterways including the Great Lakes, the New York Canal, the Hudson River, the Atlantic Coastal Canals, the Intercoastal Canals along the Gulf, the Mississippi waterways system and the connection of that system with Lake Michigan at Chicago, which would give an opportunity for continuous service and connection around the entire section of the United States from the Mississippi River to the Atlantic and from the Lakes to the Gulf.

Superficial observers of operations on the Mississippi River are inclined to believe that little commerce is being moved thereon but the fact is that more merchandise, raw material and agricultural products are now being shipped by water on the Mississippi River than ever before in the history of that stream and the constantly increasing tonnage on connecting waterways shows a relative development in tonnage handled.

Miscellaneous Freight on Federal Barge Lines Wharf at New Orleans



St. George Tucker House

THE RESTORATION OF WILLIAMSBURG

By

B. W. Norton

WILLIAMSBURG, second colonial capital of Virginia, is emerging from a transition period at the opening of 1933. When that period is completed with the restoration of the historic colonial section of the city during the next two years, it will mark the completion of a chapter unique in the history of this old Tidewater Virginia city which runs back more than 300 years.

Williamsburg is becoming more widely known for the restoration of the colonial city which was undertaken about five years ago by Mr. John D. Rockefeller, Jr. Viewed as a whole this undertaking already has stirred the imagination of many persons in this country and abroad who appreciate the important contribution which came out of the colonial capital of Virginia during the decades of the 18th century preceding the American Revolution when the city exerted its widest influence and enjoyed its greatest prestige among the American colonies.

One of the conspicuous characteristics of the Restoration during 1932 was the rapid progress with which the major program of construction was carried forward. Considerably more than $1,500,000 were spent during the year on construction, landscaping, and other major phases of the restoration work. The program in all important respects laid down at the beginning of the year was carried through according to schedule. Naturally the progress made during the past twelve months has been more visible because so much of the work has been concerned with actual construction of important buildings. In this sense the year just past has been one of the most active periods of the entire restoration, because so much of the work which hitherto had been of the invisible type—concerned with exhaustive research and archaeological studies—preparing the way for the more visible forms of restoration embodied in the construction of colonial homes and public building.

* * *

THE RESTORATION has been defined as "an endeavor to restore accurately and to preserve for all time the most significant portions of an historic and typical city of America's colonial period." Those parts of the city which are included in this work are not to be restored to any specific date. To do so would be impractical from the standpoint of historic interest and value. It was considered more desirable to let the undertaking represent the architectural development of Williamsburg in the 17th and 18th centuries. Every practicable effort has been made and will continue to be made to have the restored city colonial in its feeling and appearance.

Those who are in charge of the Restoration have three specific purposes in view—first, to provide and preserve a visual record of the life and history of the Virginia Colony which played a leading role in shaping the early history of America; secondly, to make this record available to the general public and students of colonial architecture, gardens, furniture and decoration; and finally, to make the restored city a shrine of patriotic interest where great events of early American history and the lives of many of the men who made it may be visualized in their proper setting.

The idea of the Restoration originated with the Rev. W. A. R. Goodwin, Rector of Bruton Parish Church, during the years which followed his coming to Williamsburg in 1902. It was nearly 25 years later, however, before Dr. Goodwin's dream began to be translated into reality through the interest of Mr. Rockefeller in this unique undertaking.

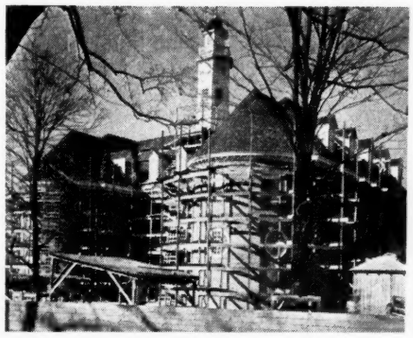
Most of the property to be included in the Restoration—and it now represents more than 90 per cent of the property which comprised the colonial city—was acquired during 1927 and 1928. While this program was under way exhaustive studies were made so that those engaged in the Restoration might have a thorough knowledge and understanding of the problems in hand, and also that they might be prepared in advance to recognize the major difficulties that would arise in such a complex undertak-

ing. Particular attention was given to the question of adequate business inasmuch as many buildings used for both residential and commercial purposes would be destroyed in a rapidly growing community.

During this period the architects made a detailed study of colonial architecture both in Williamsburg and throughout Virginia. Archaeological investigation was undertaken together with a research campaign which took representatives of the Restoration into every available source of information in this country and in several foreign countries—notably England and France. Also at this time the landscape architect undertook a thorough investigation and study of the colonial gardens in Williamsburg and throughout the state.

All these activities required time because from the outset the chief objective of those in charge of the Restoration was to proceed with the utmost accuracy and fidelity to the best available information concerning Williamsburg in the colonial period. The first three years of the Restoration may properly be described as a period of preparation. Consequently, little structural restoration could be undertaken. Gradually, however, visible results began to appear, and within the past two years these have grown steadily to the present proportions.

Up to the present time 55 buildings have been restored, 17 new buildings have been built, 7 buildings are under construction (new and being restored), 306 buildings of modern construction have been torn down, while 13 buildings of new construction have been moved and relocated outside the restoration area.



Colonial Capitol Building Under Construction

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Raleigh Tavern

Insert shows the Apollo Room in the Raleigh Tavern, favorite gathering place of Colonial society before the American Revolution, which has been restored to its 18th century appearance as part of the restoration of Colonial Williamsburg by John D. Rockefeller, Jr.

During 1932 the completion of landscaping on nearly a dozen of the more important properties included in the Restoration, contributed much toward the more finished exterior appearance of the restored city.

Briefly, the progress of construction and restoration in 1932 may be summarized as follows:

1. Raleigh Tavern, one of the most famous of the public buildings in Williamsburg during the 18th century, was opened as an exhibition building.
2. Archaeological excavation for foundations were made on 13 sites.
3. Construction of a block of new business structures to accommodate shops and offices was completed. One of the buildings in this group, to be finished and occupied early in 1933, is the new motion picture theatre. The completion of these buildings will make possible the removal of a number of unsightly structures in other parts of the city which are scheduled to be torn down or removed during 1933.
4. Restoration of the second colonial courthouse and two historic colonial homes was completed.
5. Notable progress was made in the construction of the colonial Capitol and the Governor's Palace which are being rebuilt or restored on original foundations.

Restoration of the colonial Capitol and Governor's Palace constitutes the major unfinished construction work to be carried forward during 1933. These buildings are now approximately 60 per cent completed, but the remaining work of interior construction, furnishing, and landscaping, is so extensive as to require a number of months before these buildings will be ready for public exhibition, as they are intended to be.

Another feature of the program which remains to be determined is the undergrounding of telephone and electric lines which are now run on poles in the center of Duke of Gloucester Street—the main thoroughfare of the city—and the resurfacing of the street with appropriate landscaping to give this thoroughfare a more colonial appearance.

* * *

THE RESTORATION of an existing home or building represents much more than the physical construction and the assembling of carefully selected materials to harmonize completely with the colonial environment which is being re-created here. Since authenticity is the sole consideration, the work of restoration really becomes a thorough study of the history of the structure as to architecture, ownership, and occupancy. Many colonial buildings have been changed and renovated in recent years. Former owners and occupants are able to recall the changes made. Valuable information is often found in the papers of persons no longer living, in old insurance policies, and on old property maps of the city which have been preserved. Court records, when available, contain interesting evidences. Archaeological investigation reveals foundations of portions and dependencies which may have been destroyed. With this information in hand, the building is dismantled, often to its frame. This permits the study of its construction and reveals any unsuspected alterations which have been made in the past. It also permits the replacement of decayed materials, although every piece of old material which is sound is retained. In some cases it is necessary to raise the building with jacks and replace decayed foundation walls and sills. With this work accomplished, the building is reassembled, the old materials which are sound and accurate being used. The building then is replastered by methods employed by colonial plasterers. It is redecorated according to the available evidences of its original decorations. Where evidence is lacking, precedent established by similar houses of similar date is resorted to.

The Sir Christopher Wren Building at the College of William and Mary may be cited as an example of the work in this division.

Procedure in the restoration of homes and buildings which have disappeared involves more extensive research work. In some cases the buildings are replaced with old buildings of similar design and date, which are moved bodily into the restoration area or are dismantled elsewhere and reassembled on the site. More often they are rebuilt with similar materials and by methods similar to those employed in their original construction. In practically every case, excavations reveal the original foundations, which are invaluable in substantiating pictorial and documentary evidence.

The Palace of the Royal Governors, destroyed by fire in 1781, is an interesting example of the work in this division. Archaeological investigation revealed the complete foundation and cellar of this building and the foundations of its dependencies. In these foundations were found thousands of fragments indicative of the building and its contents. Research endeavor has provided a volume of more than 300 pages of documentary and pictorial evidence pertaining to the structure, its erection, appearance, decoration, and furnishings. This material includes a scale drawing of the front elevation of the building and the arrangement of its dependencies, which remained standing after the central building was destroyed, and a floor plan prepared by Thomas Jefferson. From the information and evidence in hand, a reconstruction of the Palace, accurate in practically every detail, can be accomplished. Similar evidence was available for the reconstruction of the Raleigh Tavern, and is available for the rebuilding of the colonial Capitol.

Removal of modern homes and buildings from the restored area, is accomplished by tearing down valueless buildings and moving sound buildings to new locations, where they may be of service in the solution of the housing problem. As an example of this work, it may be pointed out that where the Travis House now stands a sheet metal motion picture theatre and a house of the Victorian period formerly stood. Work in this division of the problem is continually in process.

* * *

GREAT CARE has also been given to the choice of material used in the restored buildings. For example, the bricks have been made locally and of local clay from methods employed by colonial brick makers. In the course of preliminary studies it was found that the glazed head bricks used in colonial brickwork in Williamsburg were the result of burning conditions in the kilns. Experiments were conducted over an extended period before the type of brick was finally produced in a satisfactory condition.

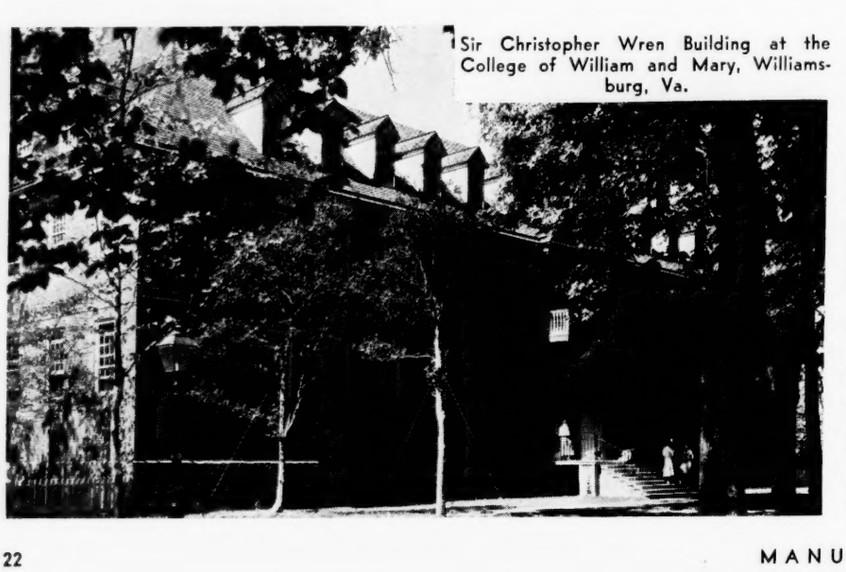
Pine and walnut were the woods most commonly found in the old buildings of the city and they have, therefore, been most commonly used in their restoration. Occasionally old woodwork and old floors have been salvaged from colonial buildings.

The mortar used in the restored masonry is made of oyster shell lime, duplicating methods employed in the colonial period.

Shingles used on restored houses and buildings have been especially designed and are fireproof. They resemble old wooden shingles in color, size and appearance and will improve greatly with age.

Much of the hardware in the restored buildings is original. In some cases it has been possible to purchase old hardware; in others, missing equipment has been replaced by hand-made pieces made by a blacksmith in the employ of the Restoration.

Many persons interested in some phase of colonial history—whether politics, architecture, social life, or gardens—have already been attracted to Williamsburg. The opening of Raleigh Tavern as the first exhibition building in September, 1932, served as a prelude to similar occasions which may be expected to mark the progress of the Restoration.



Sir Christopher Wren Building at the College of William and Mary, Williamsburg, Va.

CONSTRUCTIVE BUSINESS PLANNING

By

E. T. Weir
Chairman,
National Steel Corporation,
Pittsburgh, Pa.

BUSINESS men are confronted today with many relatively plain and simple economic problems. These problems have been complicated, magnified, and almost hopelessly confused by a perfect deluge of loose thinking and irresponsible planning that if not checked actually threaten our social and economic order.

The press of the country has at great pains and expense, unselfishly and whole-heartedly given full publicity and support to many very constructive ideas. Unfortunately, probably on the premise that names make news, much unsound philosophy has found its way into the public prints.

Action Needed

We have all realized by now the futility of wishing ourselves out of the depression. Individually and collectively we must do something if progress is to be made. Those who believe that whatever goes up must come down and, conversely, because things are now down they must go up, are in for a rude awakening. The business cycle is not susceptible to the reasoning of the Newton theory. If three years of depression have taught us anything, it is the fact that such violent fluctuations in business must be eliminated if our social and economic order are to endure. All future business planning must have stability as its keystone.

We all realize that the major subject for consideration in this critical time is the enormous amount of unemployment and partial employment as a result of which earnings of all workers have either been eliminated, or reduced to an extent, that is seriously interfering with American standards of living.

Justifiable Expenditures

Liquidation of wages and employment has carried on to a point where serious thought must be given by business-men as to how much further this program can be carried without involving our standards to a point of serious danger. My own opinion is that we should go no further in this type of liquidation, but that we should begin to face in the opposite direction, and as business-men become active in a program of rehabilitation of employment and earnings. Through this medium only can we return to the standards of living that are harmonious with the principles of the United States. The way to start this movement and carry it on is to encourage the spending of money where money is available and for purposes that are sound and permanently constructive. To spend money simply for the sake of spending will always result in failure, and this should never be encouraged either now or in the future. But where it is for the purpose of reconstruction, rehabilitation, and modernization, certainly expenditures are justified. The individual or the corporation willing to go ahead now when costs are low and spend money judiciously and carefully to put plants in order will reap benefits in the future through being competitive in cost, quality, and service, and will also do a magnificent work in the great emergency now existing through furnishing employment, increasing the earnings of labor and, as a result, building an increased buying-capacity.

Industrial Rehabilitation Movement

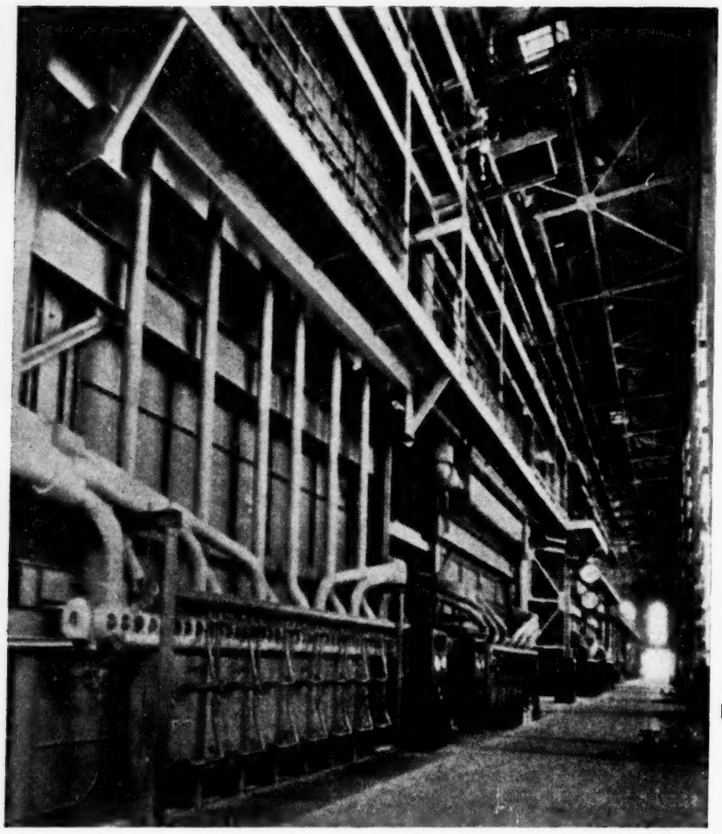
The work that has been done in the past six months through activities of the National Committee on Industrial Rehabilitation has stimulated an interest in all sections of the country that has resulted at the present time in actual obligations and appropriations on the part of Corporations and business generally of approximately $140,000,000. Much of this work is being carried on actively every day. Not only that, but in an educational sense this program has been cumulative because we find an increasing interest and realization on the part of industrial leaders that it is constructive and is one of the medium through which normal conditions can be returned. A great fear has been upon the business-men of the country which has retarded normal operations and expenditures even on the part of those who have the money available to carry on. But a careful study of the fundamental facts, which reveals a country of still great possibilities, enormous resources, people educated to a high standard of living—active, industrious and aggressive—justifies a courage to do the normal thing and spend liberally for rehabilitation and modernization, building substantial profits for the future and being prepared to meet competition no matter how keen it might be.

Men in business have the responsibility, as I see it, of carrying out this program, to furnish employment, to prevent further serious liquidation, and to take leadership in saying to the country that we believe in its future, believe that the worst phases of this depression are past, and that we are stepping out to spend our money in an effort to help bring back to millions of people employment and such a standard of earnings as will maintain individual independence, which every American citizen insists upon, not only now but for the future. *Every dollar spent for Rehabilitation and improvement means increased employment.*

The analysis of the present economic situation and the constructive conclusions presented in this article by Mr. Weir cannot be too strongly emphasized. His reasoning is based on the experience of a successful business leader who has put into actual practice policies and plans that have made his organization an outstanding iron and steel producer of the country, and one which has been able to show a profit in the past two years of the depression.

His suggestion that now is the time to make justifiable expenditures for reconstruction, rehabilitation and modernization to create employment is not only sound but is following the plan adopted by the National Steel Corporation and other progressive concerns which are taking advantage of low construction, material and equipment costs to prepare for the future, in order "to meet competition no matter how keen it might be."

This was the idea back of the movement of the National Steel Corporation last fall to further expend $900,000 for improvements and modernization at its various operations. These improvements are in addition to the constantly expanding program which has been under way at Weirton, W. Va., and Detroit since 1930, large expenditures having been made for new bar and structural mills. — Editor Manufacturers Record.



Battery of Gas Fired Boilers

Sterlington Plant of the Louisiana Power and Light Company

SOUTHERN GAS-STEAM ELECTRIC PLANTS

By

J. B. Nealey

American Gas Association

NATURAL gas has become an important factor in steam generation in many sections of America, and particularly so in the Southern States. The power industry is in a state of transition. A change is noted among factories, public buildings, hotels, etc., where many independent power plants are being installed by the owners whereby they furnish their own needs for power, light and heat.

In the central power stations, producing electricity, the consumption of gas rose 550 per cent during the 12-year period 1919-1931. Its use, together with the development of the modern high pressure boiler, has lowered the cost of producing electricity to a point where the gas steam electric plant is a direct competitor of the time honored hydro electric plant. The further discovery that gas can be transmitted in pipe lines at a half or a third of the cost of transmitting an equivalent amount of electricity over wires is another factor contributing to the progress gas is making in the field of power.

A good example of these trends, as recently described in detail in the MANUFACTURERS RECORD, is the Public Service Company of San Antonio, Texas, supplying the city and surrounding territory with electricity. It uses gas in all three of its plants and has recently installed one of the latest design boilers in its Station B plant. This boiler is equipped with a superheater, steam reheater, economizer and air preheater and will stand a pressure of 1400 pounds with steam at 815 degrees F. There is only one other boiler installation comparable with this one in the State of Texas and only a few in the United States.

Steam is raised with ten gas burners, arranged in two rows, and firing directly into the fire box, the hot products of combustion rising up through the boiler tubes, the economizer, the air preheater and out the stack. Forced and induced drafts, created by motor driven fans and blowers, control the flow of heat, and, just before it passes out the stack, it is used in the preheater to heat fresh air for combustion at the burners.

The trend is toward larger boilers with higher steam pressures and temperatures and the use of economizers, air preheaters, etc., is also gaining headway rapidly. These improvements were incorporated in the extension to the Deepwater plant of the Houston Lighting & Power Co., Houston, Texas.

This company furnishes all of the electricity for the city of Houston and for more than 75 surrounding towns within a radius of 60 miles, including Goose Creek, Baytown, Pelly, Humble, Katy, Wharton, Richmond, Rosenberg, East Bernard, Sugarland, Freeport, West Columbia, Newgulf, La Porte, and many smaller communities. It also furnishes some power to the street railway systems of Houston and Galveston, both local and suburban. The City of Houston is supplied over several high voltage lines and the more distant parts of the territory over 66,000 volt loop lines.

The Deepwater plant as originally built in 1924 contained four Babcock & Wilcox cross drum boilers with air cooled brick settings and fitted to burn oil. These boilers had a maximum capacity of 160,000 pounds per hour each. On each of two subsequent extensions another boiler of the same physical size, but fitted with water walls, air heaters, induced draft fans and combination oil and natural gas burners and having a capacity of 325,000 pounds per hour was installed. With the adoption of natural gas as a fuel it was also possible to go back to the four original boilers with brick settings and add air preheaters and induced draft fans and increase the output of each to 220,000 pounds per hour. This increase of 60,000 pounds per hour for each of the four boilers, or 240,000 pounds per hour total, saved the investment in another boiler. The furnace temperatures with gas being substantially low makes it possible to drive the boilers to high ratings with gas without damaging the boiler brickwork due to excessive temperatures.

Gas is fired through 20 gas burners in each of the new boilers. These burners are set in the outer wall of the windbox and extend through the windbox so as to fire through ports in the furnace wall. Heated air for combustion is forced

through the air heaters and ducts to the windbox by variable speed motor driven, forced draft fans. This air is supplied at pressures as high as 15 inches of water while the gas pressures vary from three to eight pounds. Products of combustion are removed from the furnace by use of induced draft fans. The path of flow is baffled among the boiler tubes so that the hot gases contact the maximum heating surface and then pass through the economizer, the air heater, then the induced draft fans and out at the stack. At high ratings a suction of 15 to 16 inches of water may be required at the induced draft fans.

One of the cheapest sources of power in America, because of the location, is the Sterlington plant of the Louisiana Power & Light Co. It is in the Monroe gas field not far from Monroe, La., and was constructed for the utilization of gas alone. The low cost arises from the fact that the gas is used right from the casinghead which eliminates the transmission cost of gas, at the start. This plant has a capacity of close to 100,000 kilowatts.

The New Orleans power plant of the New Orleans Public Service Co., is fired with gas from the same field, but it is 275 miles away and is served through a pipe line of this length. Constructed so as to use any of three fuels, pulverized coal, oil or gas, the plant can be operated on any one of these fuels, or a part of the plant on one, the rest of it on another. The company enjoys a very low price on the gas for it is sold at an "off peak" rate, that is, when the demand for gas becomes very great the seller has the privilege of cutting off this supply from the generator station and diverting it elsewhere in part or in whole. At such times one or more boilers are changed from gas to one of the other fuels, on request of the load dispatcher of the pipe line. The fuel supply is restored as soon as the peak demand has subsided.

Baton Rouge and surrounding territory is now served from a plant recently built and owned by the Louisiana Steam Products Co. This plant is gas fired and is about the same size as the Sterlington plant. Among its customers is the Baton Rouge refinery of the Standard Oil Company of Louisiana which takes some steam. This refinery also uses gas in some of the processes.

The Memphis Power & Light Co. which furnishes electricity to Memphis, Tenn., and adjacent territory converted its Fourth Street station to gas firing with a material saving in labor, upkeep and fuel cost. The boiler plant includes 12 Babcock & Wilcox boilers, eight being of the low pressure, longitudinal drum, inclined header water tube boilers and the other four of the high pressure, cross drum, vertical header type. The boilers are provided with superheaters and are arranged in two rows fronting on a common firing aisle. Two concrete chimneys 230 feet high furnish draft for the entire plant.

When converting to gas fuel a combination gas and oil burner was chosen and each of the low pressure boilers were equipped with four high pressure burners, each capable of delivering 10,000 cubic feet of gas per hour at five pounds pressure. On the high pressure side, three of the boilers now have eight gas burners each, four installed on each side while the fourth is equipped with nine, firing from the rear. The capacity of these burners is 15,000 cubic feet hourly each with gas at five pounds. Forced draft for combustion is used with the high pressure boilers while natural draft suffices for the others.

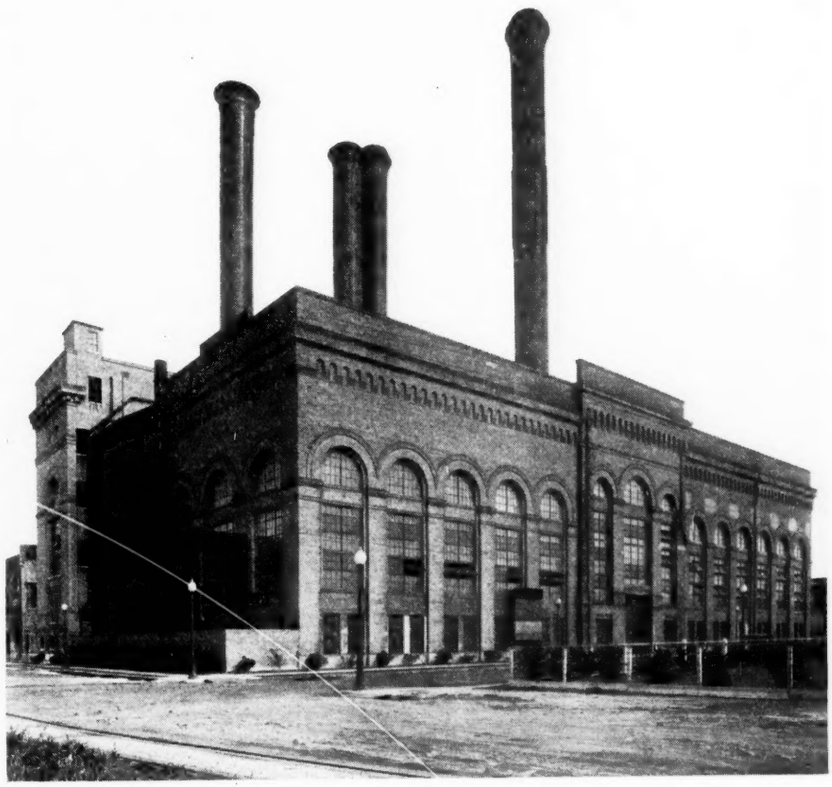
The average superheats are higher by about 30 degrees F. when firing with gas due partially to the fact the superheater tubes are always clean and allow of a maximum of heat interchange.

Since converting to gas the plant is run with 13 less operators and three less maintenance men while furnace repairs have been reduced 80 per cent. The b.t.u. per kilowatt hour of station output is about 5 per cent lower with gas while 10 per cent higher continuous steaming rates are now possible.

The main power plant of the Dallas Power and Light Company, at Dallas, Texas, is operated with gas as fuel. The plant is divided into two sections with six boilers in each, one section operating at 350 pounds pressure and the other at 200 pounds pressure. The steam from each section is collected from its six boilers in a single header, three turbo generators being driven from the high pressure side and two from the low pressure. The combined capacity of these generators is 82,500 kilowatts with an average boiler efficiency of around 80 per cent. Ratings as high as 550 per cent are carried on the boilers equipped with air preheaters.

The situation farther west in California is also interesting. The Pacific Gas and Electric Company, San Francisco, which serves a territory of 85,000 square miles, is unique because this territory is surrounded with mountains which provide a limitless number of water powers from which the electrical distribution is accomplished with comparatively short lines. Even here, however, gas is being used for fuel. The Pacific Gas and Electric Company now serves gas to practically all of the major communities in its territory, and, together with the Standard Oil Company has laid a second pipe line from the Kettleman Hills natural gas field to the San Francisco Bay area. These lines have a daily capacity of over 200,000,000 cubic feet.

Market Street Power Plant of New Orleans Public Service Co.



WORKMEN'S COMPENSATION INSURANCE

By

F. Robertson Jones
General Manager,
Association of Casualty and
Surety Executives

THE present crisis in workmen's compensation insurance rates has long been impending. The existing depression has simply expedited and aggravated it. With prices depressed and profits wiped out, industry naturally complains that this is not the time for an increase in rates for workmen's compensation insurance. But this very depression in industry, by reducing payrolls, has reduced the sum of the premiums for compensation insurance, without anything like a corresponding reduction in the cost of the benefits insured, thereby entailing an immediate increase in the rates if premiums are to equal the cost. Among the insurance carriers, the mutuals, because their insurance includes no agency service, may be able to make ends meet at the old rates; but the stock companies, which for some ten years past have continuously suffered severe losses from inadequate compensation rates, cannot possibly continue to provide, roughly, $1.20 in benefits and service for each $1 in premiums. Either their rates must be increased or they must approximately quit the business—unless the laws can be amended to reduce the excessive cost of the compensation.

Theoretically, it might be expected that present conditions would result in a decrease in the number of industrial accidents, with a corresponding reduction in the compensation cost. But the actual effect is just the reverse. The economies being resorted to by industry are causing some confusion in operations and some neglect of safety measures, both tending to increase relative accident frequency. Owing to the maxima on weekly payments fixed in our compensation laws, reductions in the average earnings of employes have the effect of increasing the ratio of compensation cost to the payrolls upon which premiums are based. Under many of our laws, compensation is based upon "average wages" computed on a full-time basis, whereas the insurance premiums are now often based upon short-time payrolls.

As noted, the consequences of the existing industrial depression have merely accelerated a long continuing increase in workmen's compensation cost. In a recent address, entitled "Ominous Abuses Threatening the Insurability of Workmen's Compensation," I have explained the causes of such persistent increase. Here I can only outline a few of them.

Originally, the compensation laws were intended and expected simply to replace the old "employers' liability law," by providing reasonable relief for the victims of industrial accidents, regardless of fault, instead of full damages for those injuries only which are due to the employer's negligence. But, in practice, such laws have been construed ever more and more liberally to provide health insurance—that is, to require industry to compensate for the consequences of ill health merely aggravated or accelerated by the normal exposures and exertions incident to going to work instead of resting at home or going to a hospital.

Such laws were intended and expected to cover only accidents incurred while doing something reasonably incidental to the employment; but they are being construed more and more liberally to cover accidents caused by perils incurred by employes because of departures from the line of duty for purposes of their own.

It was intended and expected that compensation should be limited to a portion only of the loss resulting from an accident; but now the compensation laws have been construed or amended to provide pecuniary benefits far exceeding the loss in many cases. So far has this gone that, in some states, women who marry fatally injured workmen on their deathbeds thereby acquire the right to life pensions.

F. Robertson Jones

It was expected that, under the compensation laws, employers should receive prompt notice of accidents, so as to enable them to furnish prompt treatment for the prevention of infections and other aggravations of the injuries and to investigate the causes of the accidents. But such expectations have been thwarted by rulings to the effect that no notice of an alleged accident is necessary until the injury has become serious, thereby condoning and encouraging the neglect of injuries and affording opportunities for the fraudulent ascription of injuries to fictitious or unrelated accidents.

It was expected that there would be some finality in decisions of claims for compensation and that the power to reopen and increase awards, confided to the Commissions under many of the compensation laws, would be exercised judiciously. In practice, however, that power has been and is being widely abused in ways to keep controversies perpetually alive and to invite repeated pleas for retrial of decided issues, resulting in frequent and unwarranted additions to the cost of closed cases and exceedingly wasteful expense.

It was expected that, under the compensation laws, controverted claims would be impartially adjudicated. But many of the Commissions are proceeding upon the theory that it is their function to award each claimant the largest amount of compensation possible, and are persistently basing awards in favor of claimants upon findings of fact contrary to the manifest weight of evidence, thereby adding to the true losses the cost of increasing multitudes of fraudulent and exaggerated claims.

Originally, it was hoped that the medical benefits under the compensation laws could be provided economically, at rates which would soon become fairly stable. But experience has shattered that hope. The cost of such benefits has been increasing steadily and inordinately.

So long as the factors herein outlined are allowed to operate unchecked, the cost of workmen's compensation insurance will continue to mount by leaps and bounds, without any predictable limit. This is a situation which cries aloud for a remedy. The remedy, in my opinion, consists of a series of complex amendments to the compensation laws, which I have set forth at length in the address above cited.

THE SMALLER PLANTS POSSIBILITIES

By

D. R. Stevens
Vice-President
The Okonite Company
Passaic, N. J.

THE roots of the greatest happiness, and consequent greatest efficiency, lie in the smaller plants but only in the case where they have an able, well trained, level-headed management. In a small plant it is *possible* to have a simple organization. In large industry and in government simplicity is absent. Make no mistake, we have to have our large industries and our government.

Mr. Schwab has uttered a golden rule —"I have never seen a man who could do real work except under the stimulus of encouragement and enthusiasm and the approval of the people for whom he is working." A small plant needs no charts and push pins for production control. It can employ operatives to do work right and with pride and all inspectors can be eliminated. The manager can do his own foremen training and be trained by his foremen.

A small plant has the opportunity to remind the world that each company has its own sales manager and its own purchasing agent but that each sales manager must sell somebody else's purchasing agent.

A small plant can set the pace toward better ideals in purchasing by suggesting—"We wish to make a profit in our industry and we hope that you can make a profit in yours." A salesman who saw this motto on a purchasing agent's wall might fall in a faint today! All purchasing agents are beginning to see that business will not recover until goods are sold at a profit. Still many are busy trying to force selling at ruinous prices.

The small plant can cut the red tape. Even the engineering schools and business colleges do not understand how much complication they are teaching. But some of our leaders of business and government do understand the American people as a voting unit are demanding simplification. In business let me quote H. P. Liversidge, Vice President of the great Philadelphia Electric Company:

> "So far as you are able, help to remove those things which are in the nature of red tape. Direct thinking, direct action, is what we need today. Furthermore, it seems to me that the electrical industry has become so *entangled in ordinances, standards, complex specifications, rules and regulations that at times one wonders how we move at all.* I plead for simplification of those things which have to do with the development of our business. I believe it is coming, because there is more sound, common sense in the electrical industry today, less ego among individuals as well as organizations, and more willingness to listen to helpful advice."

I am an engineer, educated in Boston, but I bow acknowledgment to that true word spoken in jest by Alfred E. Smith during a recent visit to the Hub of the Universe when he said 60 per cent of all the white paper manufactured in this country is used by engineers and accountants.

The greatest asset of a small plant is its ability to give quick action. A small organization with definite responsibilities eliminates the necessity of a tedious checking of departmental and company policies and obtaining of O.K.'s. A small plant may concentrate on one specialty and know its subject well and it may impress its customer on that account better than many a larger company with so-called diversification where replies are slow, understanding is difficult and deliveries drag.

The small plant has a wonderful opportunity to handle its labor policies smoothly and without misunderstanding. It needs no complicated industrial relation system.

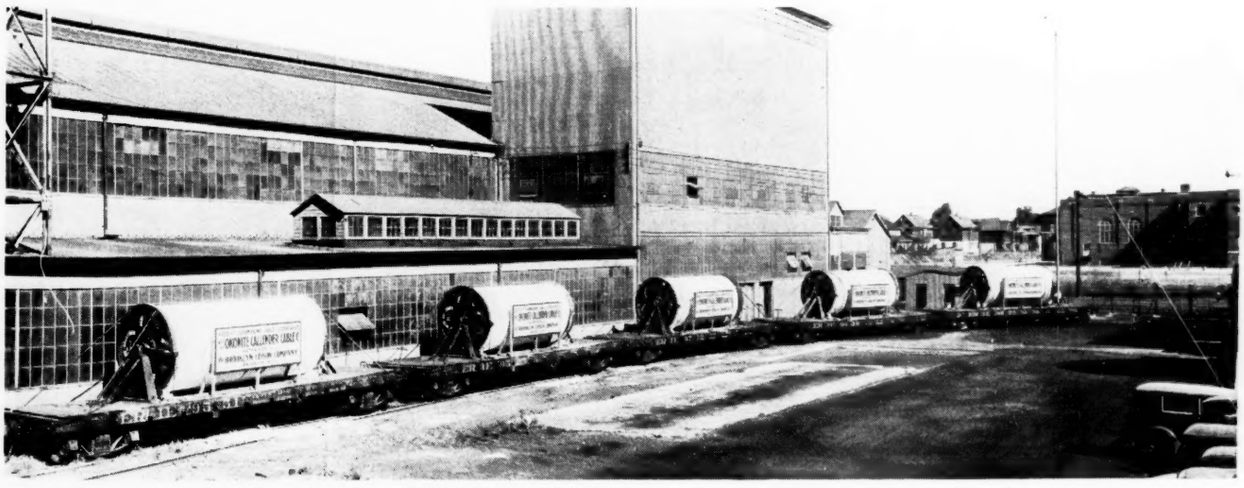
The small plant can be alert to have the best of machinery equipment and the best research equipment and staff. It is wrong to assume that the great company has unlimited resources in this regard.

David A. Weir of the National Association of Credit Men points out that the large concern has fixed obligations as to dividends and interest on plant and equipment. The small concern by its very nature, has been unable to finance so rapidly through bonds and stock and thus has avoided the difficulties of that system which are embarrassing great industry today.

If it keeps fit the little business will stand up and win out over many a big business.

A World's Record Made by Plant With 100 Employes

Eight submarine power cables, each 3300 feet long, 4 1/3 inches in diameter for 27,000 volt service, 100,000 pounds shipping weight, manufactured to meet 49 pages of specifications, the first in nine days, the eighth in seven weeks with a new quality test record



$19,472,000 IN CONSTRUCTION AWARDS

Building and Engineering Contracts Let in the Southern States During January, in the Aggregate, Are Ahead of Total Awards for Each of the First Two Months of Last Year—Projected Construction Work Is 70 Per Cent Above January, 1932

CONTRACTS awarded for building, engineering and construction projects in the Southern States aggregated $19,472,000 in the first month of 1933. This total compiled from reports published in the MANUFACTURERS RECORD DAILY CONSTRUCTION BULLETIN, covering only those jobs for which cost figures are available, and excluding hundreds of residential projects involving an expenditure of less than $10,000 each, compares with $18,287,000 in January, 1932, and with $17,604,000 in February of last year.

Last month the valuation of projected new construction and building jobs amounted to $65,302,000, as compared with $39,020,000 proposed work in the first month of 1932.

Thus, with work already under way and the initiation as soon as weather conditions permit of work on projects for which contracts were awarded during the closing months of last year, and the volume of new contracts last month, an encouraging amount of new construction is actually under way and in sight in the Southern States.

$8,000,000 for Roads and Paving

Road, street and paving work held first place in January, awards totaling $8,071,000 having been made in the sixteen Southern States. A number of the Legislatures now in session will consider legislation necessary for carrying on highway construction and maintenance, but so far only a few states have definitely decided their 1933 road programs, except to go forward on the basis of utilizing funds from gasoline tax and motor vehicle license fees. Also, the Federal Government has not yet made available any Federal funds for road construction in the next fiscal year; so some states are, while marking time, concentrating their attention on less important roads and general maintenance.

Public Building Work Under Way

Public building construction continues to play a leading role in the South's building activities, but $5,804,000, representing awards for public structures in January, is small compared with the high figures of some months last year when Federal building work was at its height.

Diversity of Industrial and Engineering Projects

Industrial and engineering projects, including a wide variety of jobs, such as industrial plants, filling stations and garages, levees and dikes, sewer and waterworks projects, and miscellaneous undertakings not properly included under any of the other classifications, account for $4,382,000 of the January awards. Contracts were let for new industrial plants and for the expansion of established plants involving an expenditure of $1,277,000. Dredging work in rivers, inland waterways and harbors along the Atlantic and Gulf coasts, for which contracts were awarded in January aggregate $1,120,000. Closely allied with this class of work are levees, revetments and dikes, principally along the Mississippi River and its tributaries, let to contract and amounting to $974,000.

New Projects Cover Wide Field

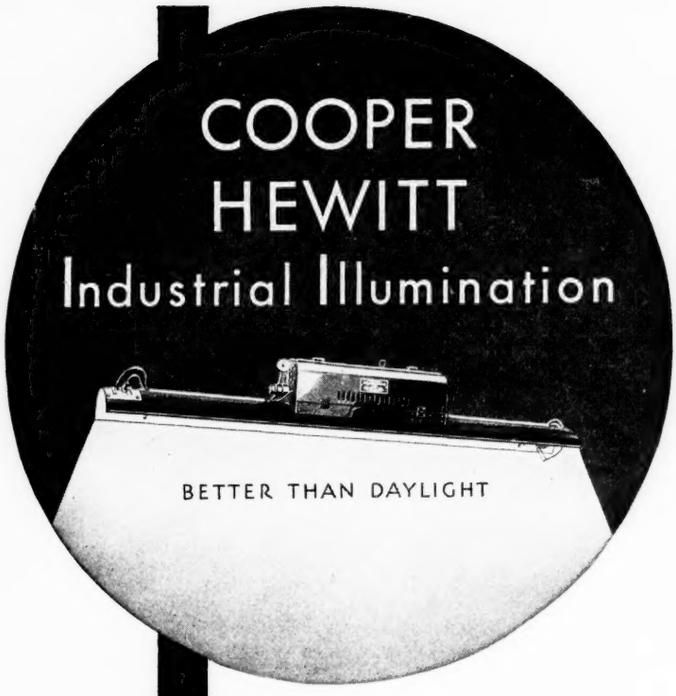
Included in the list of new industrial enterprises under way last month are several power plant extensions, a new textile mill, a chemical plant, several oil refineries, ice and cold storage plants, canning and packing plants, etc. Two notable oil refineries are projected at a cost of $5,000,000 each at Houston, Tex., and Baltimore. A $15,000,000 hydro-electric project is contemplated on the Gasconade River in Missouri. Levee work in connection with a $9,000,000 flood control project at Lake Okeechobee, will shortly be let to contract at an estimated cost of $1,500,000. The Appalachian Electric Power Company announced plans in January for a $600,000 power plant near Lynchburg, Va.

Volume of New Enterprises Announced

Projects involving $100,000 each, or over, announced in January, for which contracts, however, have not been let, include a bulk oil plant at Miami, Fla.; a $100,000 hydro-electric plant at Abbeville, S. C.; a $100,000 ice plant at Huntington, W. Va.; a $125,000 swimming pool at Charlotte, N. C.; a $100,000 incinerator at Knoxville, Tenn.; a $200,000 power plant at Richlands, Va.; a $100,000 oil refinery at Grandfield, Okla., and a similar project at Kilgore, Texas; a $150,000 power plant at Radford, Va.; a $100,000 textile mill at Burlington, N. C.; a $100,000 tablet making plant at Memphis, Tenn.; a $125,000 oil project at Tampa, Fla.; a $500,000 power plant improvements at Greensboro, N. C., etc.

Construction Activity for January 1933

	Contracts Awarded	Contracts to be Awarded
General Building		
Apartment houses and hotels	$85,000	$448,000
Association and Fraternal	15,000	40,000
Bank and office	245,000	670,000
Church	103,000	420,000
Dwellings	500,000	185,000
Stores	267,000	285,000
	$1,215,000	**$2,048,000**
Public Buildings		
City, County, Government and State	5,237,000	8,901,000
Schools	567,000	3,405,000
	$5,804,000	**$12,306,000**
Roads, Streets and Paving	**$8,071,000**	**$14,523,000**
Industrial and Engineering Projects		
Dredging	1,120,000	1,662,000
Filling Stations, Garages, etc.	285,000	295,000
Industrial plants	1,277,000	29,685,000
Levees, Revetments, Dikes, etc.	974,000	1,880,000
Warehouses	60,000	10,000
Sewers, Drainage and Water Works	580,000	2,563,000
Miscellaneous projects	86,000	330,000
	$4,382,000	**$36,425,000**
Total	**$19,472,000**	**$65,302,000**



MODERN INDUSTRY DEMANDS COOPER HEWITT LIGHTING

Concentration of production areas demands

COOPER HEWITT LIGHT

When even our political bodies, from Congress on down, begin to eliminate bureaus and concentrate departments, we know that economy, through concentration, is the order of the day. And so it is and has been in industry.

Which is why we call your particular attention to the important part being played by Cooper Hewitt industrial illumination in this widespread movement. Cooper Hewitt light eliminates dependence on window illumination and lets you utilize every square foot of your middle-floor areas at any hour of the twenty-four. It enables you to move from other buildings your best equipment, if need be, and centralize it in one. Thus, even with a six-hour day, you can give employment to two or three shifts, with the same equipment and a correspondingly lower overhead and maintenance cost. It does away with the uncertainties of weather or season.

Cooper Hewitt mercury-vapor light means:

NO GLARE . . .
NO HARD SHADOWS . . .
EASY ON THE EYES . . .
REACHES THE WORKING POINT . . .
MAGNIFIES DETAILS . . .
BETTER THAN DAYLIGHT . . .

We stake these claims against a trial in your plant.

GENERAL ELECTRIC VAPOR LAMP CO., 819 ADAMS ST., HOBOKEN, N. J.

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GENERAL ELECTRIC
VAPOR LAMP COMPANY

INDUSTRIAL EXPANSION CONTINUES

NOTWITHSTANDING the prevailing dullness in business generally, a further consideration of the investments made in industrial enterprises by Southern and outside interests gives real encouragement.

Industrialists have concretely demonstrated their faith in the South and its future. New Plants have been established during the past year and going enterprises have been expanded. The industrial expansion has continued, as indicated by the January reports. This development means activity for manufacturers of the South and elsewhere who make materials, machinery, equipment, and supplies. The South is now a profitable field for investment and manufacturing in many lines.

Increased Construction

It is well for a moment to turn back to the depression of 1921 when contracts awarded for construction and building projects in the South totalled $330,288,000. The situation was serious as business generally was burdened with enormous stocks of goods purchased at peak prices. The 1932 awards of $428,237,000 of new construction contracts, based on a compilation of reports published in the *Daily Construction Bulletin*, shows greater construction activity in the South last year than in 1921.

There is definite evidence that the South will, as in 1921, lead the country in business recovery. The value of construction awards in the South in 1929 was $779,891,000. This included contracts for general and public buildings having a value of $294,938,000, industrial and miscellaneous engineering projects amounting to $245,742,000, and road, street and paving work involving $239,300,000. In 1932 awards for general and public buildings totalled $135,943,000, industrial and miscellaneous engineering projects involved $140,329,000, and awards for road, street and paving work amounted to $151,965,000.

In view of the material decrease in construction costs generally since 1929, the volume of building and construction work in 1932 compares favorably with the peak volume of 1929.

Industrial Building

A bright feature in the South's 1932 construction program was the total of $127,210,000 of awards for industrial and engineering projects. A number of established enterprises rebuilt and modernized their plants, increasing their production capacities and at the same time cutting costs. More efficient boilers, new generating units, Diesel-electric generating sets, replacing antique power plants with those of the latest type, were installed in place of obsolete equipment, creating a demand for materials and supplies in wide variety and providing employment for a great number of workmen. As a result, Southern plants are today, for the most part, in excellent condition ready to take the fullest possible advantage of any business up-turn.

Some industrial organizations last year began to expand, considering it a sound investment to do so when construction and material costs were so low. The Continental Can Company erected a new plant at Harvey, near New Orleans, La., at a cost of $400,000, to serve the nearby territory. A central ore concentrator was built in the zinc and lead section of Oklahoma, at Miami by the Eagle-Picher Mining & Smelting Company at a cost of $500,000. Alexander H. Kerr & Company put up a plant at Huntington, W. Va., at a cost of $250,000. The Ford Motor Company built a service plant, concrete dock, offices, storage rooms, boiler and machine shops, at Alexandria, Va.

Pre-mixed concrete plants with mixer and agitator truck distribution fleets are being established in several Southern cities. The most outstanding project of this nature last year was that of the Arundel-Brooks Concrete Corporation of Baltimore.

Tobacco and cigarette factories in the South spent millions of dollars last year for new and improved automatic machinery, additional power plant facilities, and spacious storage warehouses.

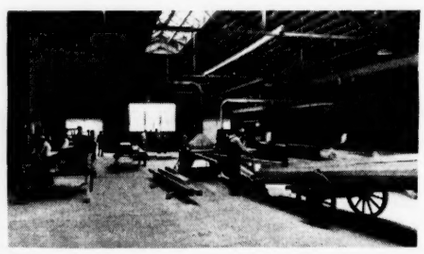
Nationally known oil concerns are spending large sums for improved manufacturing facilities in the South and Southwest. The Standard Oil of New Jersey last year completed a hydro-refining plant at Baton Rouge, La. The Sinclair Refining Company carried out a $700,000 modernization program at its Fort Worth, Texas, plant. The Texas Pipe Line Company built a $2,000,000 pipe line from the Point Barre field, Louisiana to Anchorage on the Mississippi River. Many refineries installed new type stills, cracking units and auxiliary facilities designed to produce gasoline especially suited for modern high-compression machinery more efficiently, necessitating the rebuilding of plants that a few years ago were considered the last work in refinery practice and layout.

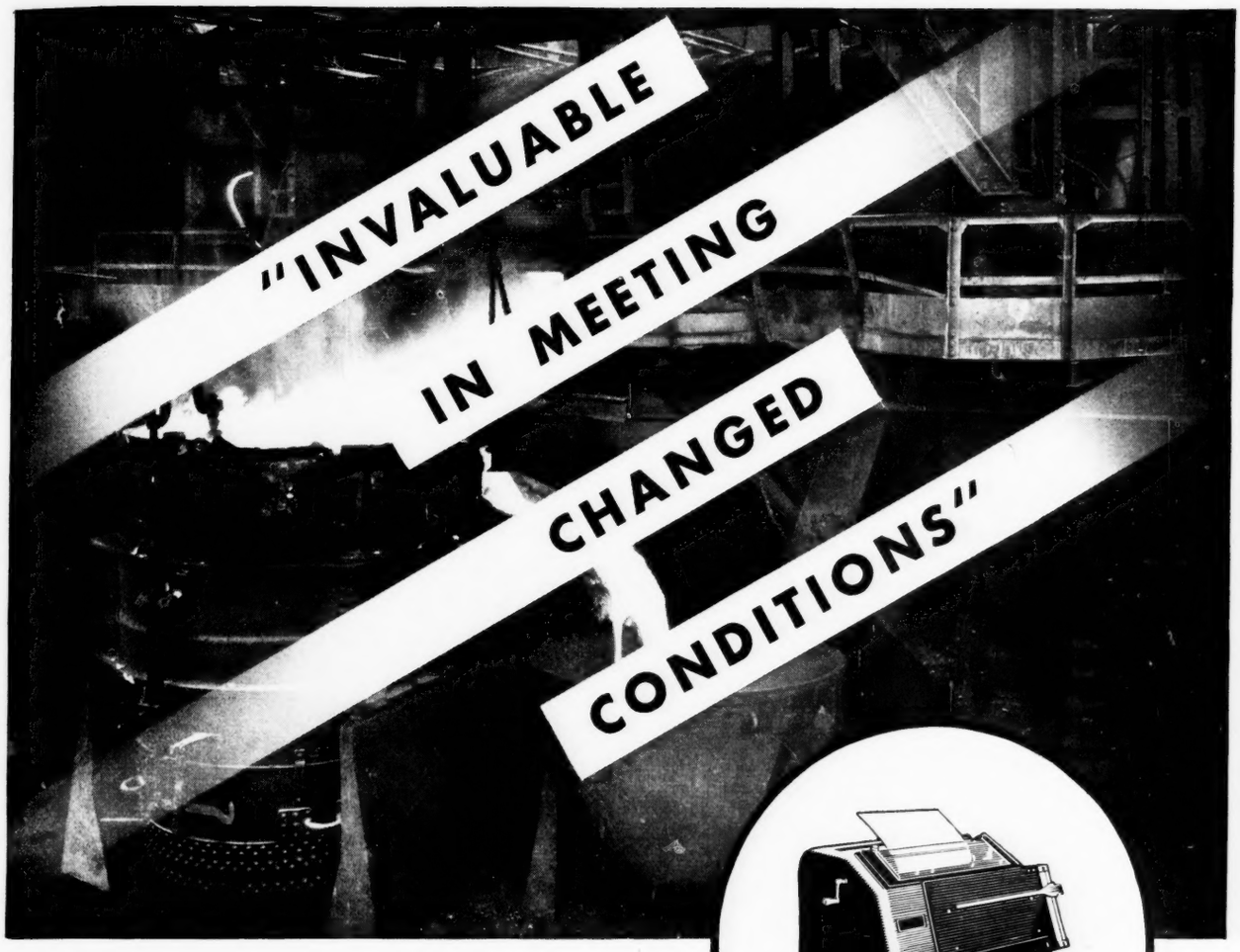
Even in a period when steel production activities dropped to an abnormally low level several companies in this industry carried on modernization work and

Joslyn Company, Baltimore

This rebuilt woodworking plant illustrates modern type of "small factory" development under way in the South. Insert shows various operations in converting timber into cross arms

Photographs through courtesy Power Pictorial of the Cons. Gas, Electric Light & Power Co., Baltimore





Teletypewriter Service cuts costs—speeds production—insures accuracy for Sharon Steel Hoop Company

HERE is what the Sharon Steel Hoop Company gains through use of Teletypewriter Service:

1—Instant *typewritten* exchange of important information between mill, district offices and customers. . . . 2—New simplicity, uniformity and accuracy between all units of the company in handling matters of all kinds. . . . 3—Definite savings in operating costs. . . . 4—Speeding up of deliveries through starting production sooner. . . . 5—Avoidance of errors. . . . 6—Permanent records of all transactions.

B. E. Kibbee, Vice-president of the Company, says: "In many industries today, the demand for steel necessitates *teletyping* information. This is particularly true in the motor industry, where certain set schedules must be maintained. Those responsible for the schedules must know in advance what is en route for fabrication the following week. Full details are essential. We find Teletypewriter Exchange Service invaluable in meeting today's changed business conditions."

Companies in all industries are using Teletypewriter Service to cut costs, speed business. Small concerns as well as large find it profitable. Your local Bell Telephone Business Office will gladly give you full information.

TELETYPEWRITER EXCHANGE SERVICE *permits any subscriber to it to be connected at any time directly to any other subscriber to the service, whether he be 300 feet away or 3000 miles across the continent. Both subscribers may typewrite back and forth, making inquiry and reply possible on the same connection.*

PRIVATE LINE TELETYPEWRITER SERVICE *is used to connect continuously any desired number of points throughout the business day or for periods ranging from one to twenty-four hours. Both services provide speedy, accurate, two-way typewritten communication.*

added units to further diversify their output. The National Steel Corporation in September began an extensive expansion program at Weirton, W. Va. Follansbee Brothers awarded a contract for a cold rolled strip mill costing $500,000 for Follansbee, W. Va.

Chemical Development

The South is becoming a center of chemical manufacturing. Initial developments were largely the result of an increase in textile and paper manufacturing operations here. More recently the establishment of a number of industrial enterprises in other lines has created a local demand for many chemicals that can be more economically produced from raw materials nearby.

Sulphur production in Louisiana should increase materially with the establishment of a $750,000 plant on Lake Peigneur by New Orleans interests, and a similar plant in Plaquemines Parish.

The Champion Fibre Company last year installed the country's largest book paper-making machine and put up three manufacturing buildings, investing a total of $1,500,000. The largest modernization project started in 1932 was the improvement program of the Bogalusa Paper Company providing for doubling the output of paper, additional power plant facilities and the installation of recovery units estimated to cost over $1,250,000.

For the third time since its establishment a few years ago at Fredericksburg, Va., the Sylvania Industrial Corporation awarded contracts for plant expansion.

Textile Expansion

A review of the contracts let for new and enlarged textile mills and rayon plants in the South in 1932, indicates a continuation of the movement noted several years ago to round out and diversify manufacturing efforts in this line. Last year established plants were brought to a higher state of efficiency by rearranging machinery layouts to facilitate straight-line production, by replacing obsolete narrow looms with wide, high speed looms, by installing improved humidifying equipment and by the renovation of lighting systems. Additional departments were added by many plants to carry forward finishing processes. A striking development in this field in 1932 was the location of mills turning out finished garments of many types near the source of raw materials. Specialty mills expanded and new ones were located in this territory. Knitting mills spent large sums in the aggregate for improved machines, designed to turn out goods for which there is an increasing demand in new patterns and materials.

Power Projects

Power companies are anticipating increased demands from manufacturing enterprises and growing communities, to judge from expansions made in 1932 and announcements in recent weeks about new steam and hydro-electric plants. The Potomac Electric Power Company has preliminary work under way on a $5,000,000 plant to have an ultimate capacity of 200,000 kilowatts. The Current River Power Company of Doniphan, Mo., plans a $3,000,000 project to develop 26,000 horsepower on the Current River in Missouri. The Empire District Electric Company of Joplin, Mo., proposes to build a $30,000,000 project on the White River to develop 200,000 horsepower. The Appalachian Electric Power Company announced plans for a $12,000,000 hydro project on the New River in Virginia. The New Kanawha Power Company and the West Virginia Hydro-Electric Company last year about completed two coordinated plants, one a hydro unit at Hawks Nest, and the other a steam plant at Alloy, W. Va.

Louisville, Ky., Post Office Building

Waterway Improvement

Projects financed by the Federal Government dominated the engineering work undertaken and projected last year in the South. Major operations included flood control work along the Mississippi River and its tributaries, calling for the installation of wooden mattresses and articulated, concrete mats to prevent scouring of banks, the building of various types of dikes and contraction works, the dredging of channels to facilitate navigation, the erection of spillways, diversion levees and the broadening and strengthening of many miles of existing levees and the relocation of others. In itself this general program, in which $35,000,000 is spent annually, is an undertaking of far-reaching importance, attracting contractors and engineers from all parts of the country and involving the use of an assortment of powered-tools and equipment developed particularly for this kind of work. An idea of the immensity of the job may be given, by considering that a concrete mat-laying plant involves some 36 special pieces of equipment, costing approximately $500,000.

Millions of dollars are being invested in improving inland waterways by dredging new channels, deepening existing canals and rivers, and erecting costly locks. Harbor work under way and proposed involves an extensive handling of materials by dragline, clamshell and orangepeel buckets, and suction dredges.

Aviation and Air Ports

The South is a growing air center. Its climate favors year-round flying and its many streams and bodies of water are ideal for combination seaplane and landplane bases. The nearness to Central and South American countries has also served to hasten the development of splendid air fields on international routes. The Air Corps Tactical School at Maxwell Field, Montgomery, Ala., is being built at a cost of $4,000,000. The U. S. Army Air Corps project at Bolling Field near Washington, is being steadily expanded. New Orleans, is building a $3,000,000 airport. Barksdale Field Shreveport, is being developed into a great training center on a site of 22,000 acres at a cost of $8,000,000. Randolph Field at San Antonio, destined to become the "West Point of the Air", is nearing completion and will cost $14,000,000.

The South is going ahead and developing its vast material resources for greater industrial growth even when business everywhere is at the lowest ebb in the history of this country. Its position, inherently sound, as a great industrial center will be immeasurably strengthened as business improves.

MOVING MOUNTAINS at MOLE-HILL EXPENSE

Investigate every type of haulage equipment on the market . . . Compare day by day COSTS of operation . . . Cost of hired labor, repairs, fuel, upkeep, interest on capital tied up in equipment . . . Then figure the cost per ton, or per yard, of material moved in a year's time . . . It will open your eyes to the unmistakable EFFICIENCY and LOW OPERATING COST of Whitcomb Locomotives . . . They have greater HAULING CAPACITY, operate at LOWER MAINTENANCE COSTS, require LESS LABOR and LESS INVESTMENT . . . Don't be deceived by low INITIAL costs . . . It is the day-by-day OPERATING costs that count most in making or breaking the enterprise . . . If you would "move mountains at mole-hill expense", you must move them with WHITCOMBS . . . Remember, we sell more than equipment . . . Whitcomb sells service . . . Write, phone or wire . . . Sales and service everywhere.

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WHITCOMB LOCOMOTIVES

IRON, STEEL AND METAL MARKET

DURING the last week in January steel mill activity scored its fourth consecutive weekly gain rising to 19 per cent of capacity, or somewhat above the average of the last half of 1932. Business leaders, scanning the present business and prospects of the basic steel industry, were encouraged by the comeback to almost 20 per cent of capacity within a month after the holiday low. The iron and steel industry is, viewing the situation with caution, content to proceed from week to week with production activities based on orders in hand.

The market situation continues spotty. However, the fact that the January showing has been made without buying on the part of railroads is noteworthy. One of the largest steel pipe orders placed in many months calls for 14,000 tons of 8-inch pipe for a 210-mile line projected by the Phillips Petroleum Company in Oklahoma and Kansas. The order will be filled by the Republic Steel Corporation, Youngstown, Ohio.

Small-Tonnage Orders

The placing of several small-tonnage rail orders by railroads of the South with the Tennessee Coal, Iron & Railroad Company, Birmingham, may presage more extensive purchases by other lines so that rail mill activity may be expanded. About 1000 employes were recalled to the rail mill on January 30 to fill small orders placed for "immediate delivery," and including 1000 tons for the Central of Georgia Railroad, 1600 tons for the Nashville, Chattanooga & St. Louis Railroad, and a small tonnage for the Missouri-Pacific Railroad and the Gulf, Mobile & Northern Railroad. Reports have been circulated as to contemplated purchases of rail in the Birmingham section by the Louisville & Nashville and the Southern Railway System. These orders include not only the rails, but track fastenings and accessories. Some lines are holding off placing orders hoping to break the price on spikes.

Diminishing Activity Trend Checked

The fourth quarter report of the Bethlehem Steel Company was about as anticipated, considering that operations were at a rate of 13.3 per cent of capacity in the period, or at approximately the same level as in the third quarter. Nevertheless, Eugene G. Grace, president, found encouragement in the fact that for six months, steel operations have been quite steady at around 15 per cent of capacity, this fairly permanent base following three years of steadily diminishing activity. He believes the tide will soon turn. Asked when, he remarked "I don't know. But I think it will be sooner than a lot of people think." Since Mr. Grace has never been known in the steel industry "as a Pollyanna," his optimistic statement, made in an interview following the release for publication of Bethlehem earnings, is cheering. The company lost $19,404,000 from operations in 1932, but this included a deduction of $13,101,000 for depreciation and depletion. It ended the year with $46,975,000 of cash or liquid securities, and a reduction of $10,759,000 in funded debt.

In discussing the general situation E. T. Weir, president of the National Steel Corporation, last week pointed out, it is necessary to bear in mind that the theoretical 100 per cent capacity of the steel industry is 67,000,000 tons a year, a figure that is higher than has ever been attained in actual production. Mr. Weir is of the belief that 55,000,000 tons a year is more nearly a correct figure for the actual capacity of the entire industry, and to attain even this rate would necessitate operations on a schedule of 24 hours daily, seven days a week. Mr. Weir recalled that as a young man he used to hear dire predictions that the steel industry could never profitably operate vast plants; at that time the capacity was 5,000,000 tons a year.

Increased Pig Iron Shipments

Small individual orders for a variety of products have been gratifying to the steel industry. Miscellaneous releases of track fastenings have been good at Chicago. While structural steel orders have been low, various large bridges under way and projected call for a considerable tonnage in the aggregate. The increase in pig iron shipments during January over December surpassed expectations. Coincident with the increase in consumption scrap appears stronger. Cast iron pipe demand is expected to show some improvement in the near future, although nothing definite is now in sight.

Look for Improvement

Restoration of confidence throughout the nation with credit extension, and breaking the backbone of the present economic situation, are problems that can be solved, and the steel industry is in a position to play a major part in bringing about improved conditions, declared Charles F. Abbott, executive director of the American Institute of Steel Construction, while in Birmingham on a tour of the nation's steel manufacturing and fabricating centers.

Mr. Abbott is of the opinion that by putting under way self-liquidating projects for relieving unemployment that the revivifying effects on industry would be widespread. "As money becomes more plentiful in the banks and the private lending institutions realize that it is essential to find use for idle funds," said Mr. Abbott, "these self-liquidating projects will be started. It is unfortunate that Government did not rush into the breech sooner, and thus spare the country the serious burden of the present unemployment crisis. Had these projects been financed last summer, immediately after the enabling act was passed, one million of the present idle would have been working by now."

To indicate what activity of this type means in the way of providing employment and a demand for materials, Mr. Abbott listed a few projects in the Southern territory, under way or proposed, as follows:

Toll bridge at Montgomery, to cost $225,000 and employ 1400 men; building at Atlanta to cost $450,000, to provide work for 500 men; municipal power plant at Augusta, Ga., to cost $2,500,000 and provide employment for 3000 men; toll bridge at Fitzgerald to cost $275,000; bridge over Mississippi River at Baton Rouge to require 1200 men for construction; bridges in vicinity of Baton Rouge to cost $13,000,000 and to provide work for 4700 men; toll bridge at Chattanooga to cost $950,000, to employ 2400 men; four bridges at Nashville to cost $3,000,000 and to employ 4000 men.

Fabricators of structural steel in the Birmingham district confidently anticipate recovery in such measure as will necessitate operation of shops on a larger scale than has prevailed for some months. Ingalls Iron Works Company is building two barges, requiring about 600 tons of steel, which will be fabricated in Birmingham and taken to New Orleans to be used in connection with the construction of the $15,000,000 bridge across the Mississippi River. The Ingalls Iron Works Company recently shipped steel for a power plant extension of the Jefferson Lake Sulphur Company at Lake Peigneur, La., approximating 400 tons.

"hot-rolled" dollars

YOU MAY USE hot-rolled iron and steel sheets for tanks, stacks and breeching or what not. Still, if you are trying to cut fabricating costs and stretch service, we can help you.

Regular users of Armco hot-rolled sheets in the South and everywhere, for that matter, tell us dollars spent at Armco *do* bring bigger returns. The clean, uniform sheets form surely, weld fast and densely, and can outlast ordinary metals consistently. There are savings, profits, in sheets that can do these things for you.

Whatever your requirement for hot-rolled sheets, we can supply the one right product . . . light, medium or heavy grades, in rust-resisting iron, steel or copper-bearing steel. All are rolled on Armco-invented continuous mills, to accurate gage, and closely inspected before shipment.

Why not discuss your requirements with our nearest office? The probability of reducing your present material costs is worth the effort. Just sketch your needs in a letter—or telephone the inquiry.

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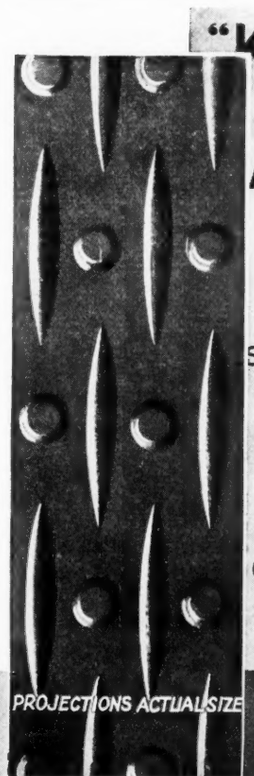

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HARRISBURG, PENNA.
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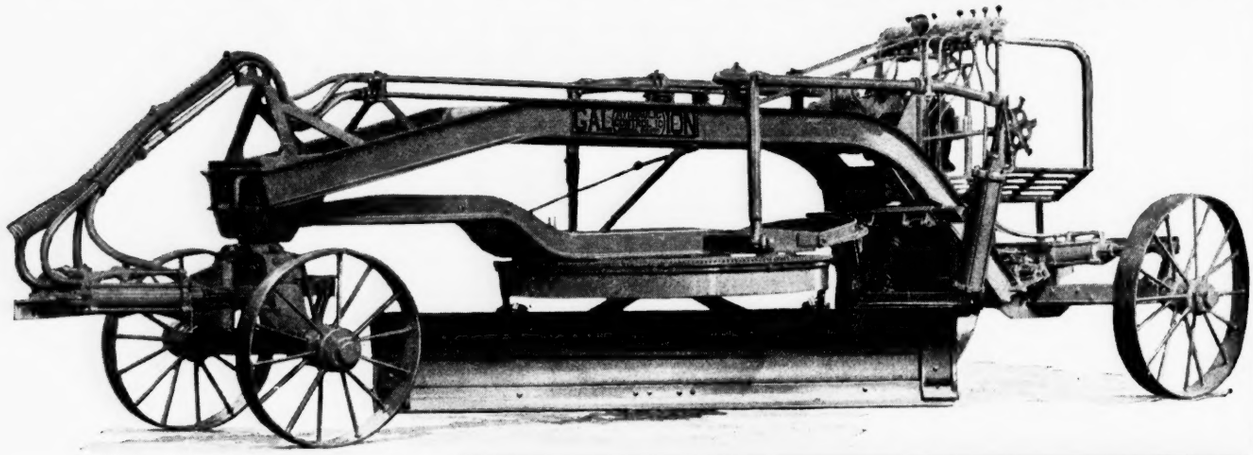
Underwriters' Laboratories Inspected S.A. 443

GALION



Galion Distributors

R. S. Armstrong & Bro. Co.,
Atlanta, Ga.

Banks-Miller Supply Co.,
Huntington, W. Va.

R. B. Everett Co.,
Houston, Tex.

Herd Equipment Co.,
Oklahoma City, Okla.

Johnson Crawler Tractor Co.,
St. Louis, Mo.

Lewis-Patten Co.,
San Antonio, Tex.

Louisiana Road Mchy. Co.,
New Orleans, La.

Morrow & Co.,
Albuquerque, New Mexico

H. W. Moore Equip. Co.,
Denver, Colo.

McDonald Sales Co.,
Springfield, Mo.

North Carolina Equip. Co.,
Raleigh, N. C.

G. C. Phillips Tractor Co. Inc.,
Birmingham, Ala.

Richmond Machy. & Equip. Co.,
Richmond, Va.

Ronstadt Hdwe. & Machy. Co.,
Tucson, Ariz.

Bert Smith,
Enid, Okla.

Smith-Booth-Usher Co.,
Los Angeles, Calif.

Tennessee Tractor Co.,
Nashville, Tenn.

HYDRAULIC OPERATED
Leaning Wheel Graders

No Gears—No Clutches—No Universal Joints—No Telescopic Shafts! And Hydraulic Operated—eight short range control levers, providing instant power-controlled action at the touch of the finger! What a revelation in Leaning Wheel Graders! Be sure to see Galion's new achievement in Grader Construction!

These and other expressions of enthusiasm were constantly heard at the Road Show in Detroit last month. Two of these New Hydraulic Operated Leaning Wheel Graders were on display at the show. One of them, the No. 10, is shown in the accompanying illustration.

If you missed the show—you missed something worthwhile. Let us send you complete data covering this latest Galion development—Hydraulic Operated Leaning Wheel Graders. Write us today.

The Galion Iron Works and Mfg. Co.
Galion, Ohio

GOOD ROADS AND MOTOR TRANSPORT

Diversion of Motor Funds Impairs Highway Development

Serious impairment, if not actual stagnation, faces the highway system of the United States in consequence of widespread diversion of motor funds to other than good roads purposes, according to J. Borton Weeks, President of the American Motorists' Association.

"The sinister aspects of diversion are fast becoming apparent," said Mr. Weeks, "and there are country-wide indications of a motorist revolt against continued use of motor funds for any purpose except highway extension, improvement and maintenance. This revolt cannot come too soon if the highway program is to be saved.

"There are in the United States approximately 3,200,000 miles of road, of which only 128,000, or four per cent, are paved. Roads classified as 'improved' total 700,000 miles. From these figures it can readily be seen that the task of building the highways in the United States has hardly begun. Diversion not only seriously interferes with the upkeep of present highways, but postpones far into the future the ultimate completion of the country's road system.

"In utter disregard of the country's need for more highways, various states last year diverted to other purposes more than $120,000,000 contributed by motorists specifically for roads. Motor fund raiders probably will divert even more this year unless motorists make a determined stand against it.

"Effects of diversion are already apparent in badly maintained roads in some states. Such highways become a liability instead of an asset. The economic loss through damage to motor vehicles and injury to their occupants is enormous.

"Another danger to the highway system is the impairment of credit which will result if there are any defaults on interest or principal on the many millions of highway bonds now outstanding. These bond payments, in most cases, are to be made from gasoline tax and license funds which are being diverted to other uses. Obviously, any such impairment of credit would seriously embarrass roadbuilding programs of the future."

At the recent Road Congress and Show in Detroit, numerous speakers directed attention to the fact that the misuse or diversion of motor tax funds was constantly adding to the ranks of the unemployed, and emphasized the point that road and street construction should continue unabated if there is to be a stemming of the unemployment tide. Failure to provide Federal aid funds was shown to be a serious handicap to States which are unable to make definite road and bridge construction plans for the latter half of 1933 and for 1934.

Motor Trucks Hauling More Farm Products

Motor trucks are hauling an increasing volume of farm products, according to field representatives of the Bureau of Agricultural Economics, United States Department of Agriculture. The situation in the East is most observable in the many truck loads of vegetables and fruits being retailed by truckmen-peddlers on the highways from North Carolina to Massachusetts. And it may be remarked that these "truckmen-peddlers" cover wide territories in their journey from Florida to the New England states, by using not only coast roads, but roads considerably inland.

From Chicago it is reported that in the potato market truckload receipts are becoming an important factor. In one day recently, it is said 30 carloads of potatoes reached Chicago in motor trucks, principally from Michigan and Wisconsin. It is estimated that fully 75 per cent of the trucking is by growers and small truckers with headquarters in producing areas. Bureau records show that in eight large markets, of total fruit and vegetable receipts in the first 11 months of 1932, 36 per cent came by truck, compared with 29 per cent in 1931 and 25 per cent in 1930.

Southwest Road Show and School

The Seventh Annual Southwest Road Show and School will be held at Wichita, Kansas, from February 21 to 24, 1933, inclusive. As a result of not holding a Show last year, it is anticipated there will be a larger number of exhibits and a larger attendance at the coming Show than there has been at any previous exposition. The six annual road shows held in Wichita in the past seven years have brought together highway and industrial contractors, state and Federal highway engineers; state, county, township and municipal officers; builders, dealers, and others interested in building, maintenance and general construction, in addition to large numbers of others interested in better roads and better equipment for their construction activities. More than 25,000 registered at the last Show, it is announced.

County Road Building in Missouri Deemed Obsolete

A report of the Citizens' Road Committee to the Highway Engineers' Association of Missouri condemns the present system of county road construction and maintenance in Missouri as "largely obsolete and not fitted to present day demands for transportation," and that it is "a hangover from the horse and buggy days," weighed down with supervisory machinery and divided into superfluous units of administration'

Pointing out the road mileage a state may build is limited by the money available for maintenance, the committee states that Missouri has 10,483 miles of completed state roads, while the 1928 authorization of farm-to-market roads will bring the total mileage to 15,000. Should present revenues be maintained, it is thought that ultimately it will be possible to build from 8000 to 10,000 additional miles of farm-to-market roads before all available funds will be required for maintenance.

The committee opposed the proposal for the reduction of automobile registration fees as likely to cripple future road construction in the state.

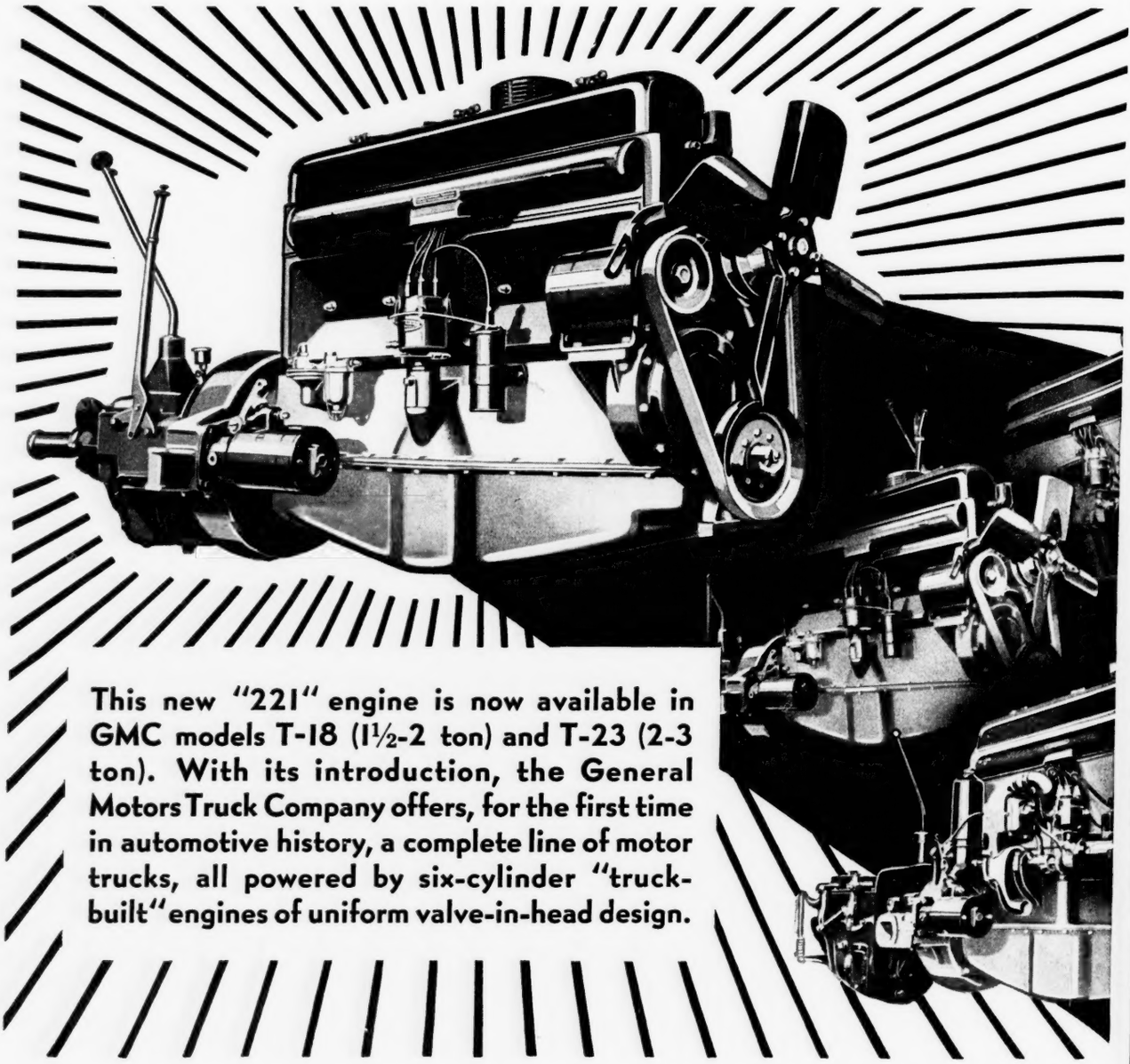
Kentucky's Largest Highway Program

A greater mileage of highways will be built in Kentucky this year than during any like period since the State Highway Commission was organized, it is announced. Some 800 miles of various types of roads were built last year, while this year about 1252 miles have been authorized or begun. The state has under maintenance at this time around 5589 miles. Total expenditures of the State Highway Commission amounted to $11,536,277 in 1932, and of this total $2,360,403 was expended for maintenance; $7,289,595 for construction by contract, and $1,886,278 for reconstruction on force account. It is estimated that 8000 persons were employed on the road program last year.

Arkansas Highway Commission

An administration highway department reorganization bill has been passed by the Arkansas Legislature and signed by Governor J. M. Futrell. The new bill became effective February 1, the Governor announcing that he would set up

(*Continued on page* 40)



This new "221" engine is now available in GMC models T-18 (1½-2 ton) and T-23 (2-3 ton). With its introduction, the General Motors Truck Company offers, for the first time in automotive history, a complete line of motor trucks, all powered by six-cylinder "truck-built" engines of uniform valve-in-head design.

Features of the 1933 Engine Line

Eight great engines are pictured on this page. They range in cubic inch displacement from 221 to 707; in horsepower, from 69 to 173; and in torque, from 155 to 550 ft. lbs. They are uniform in design, uniform in the standards to which they are built, uniform in their ideal graduation of size and power; and they also possess in common, one great outstanding characteristic—unsurpassed engine efficiency—because every 1933 GMC engine provides more sustained torque per cubic inch displacement than does any other truck engine built.

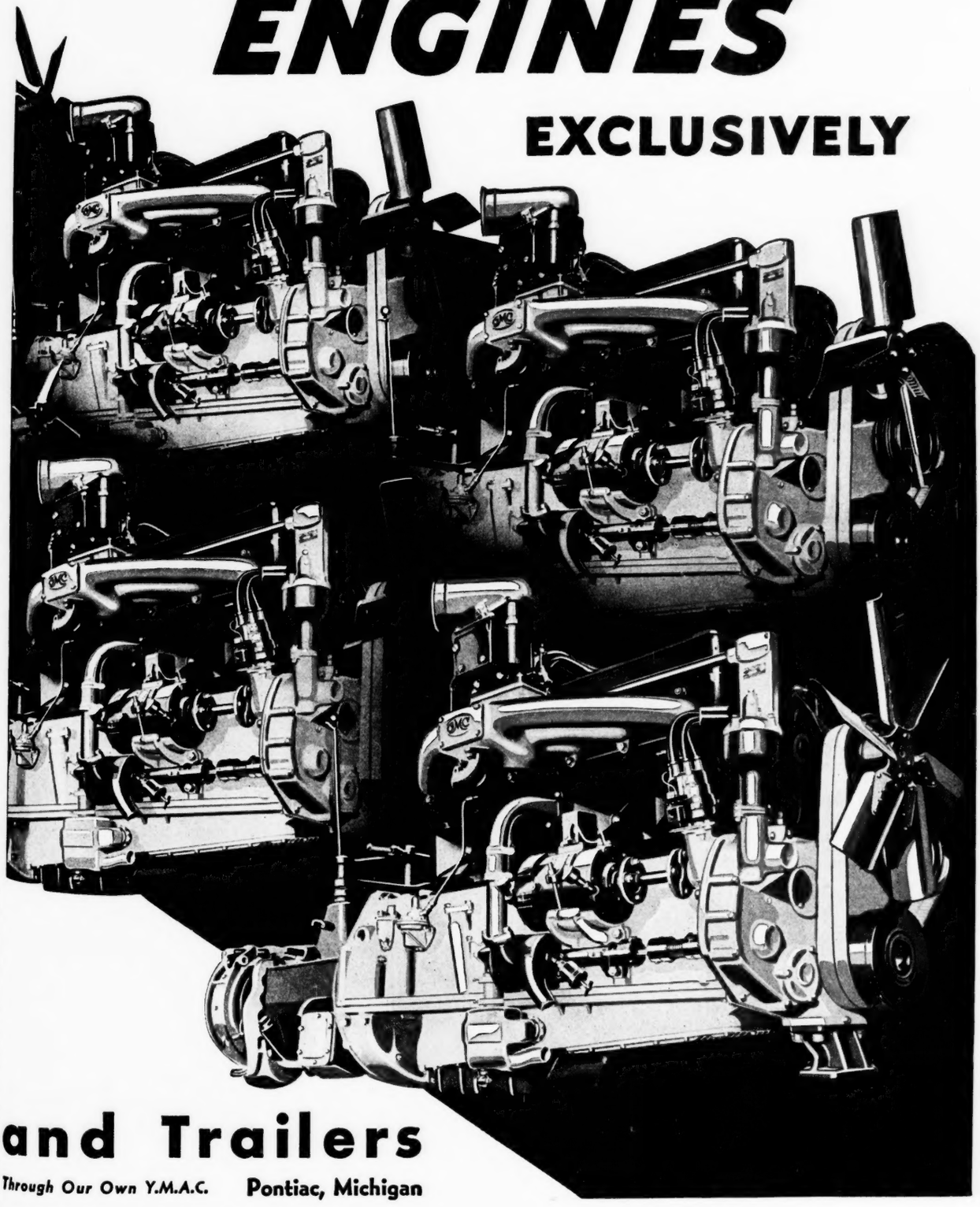
Contributing to this spectacular achievement are many features of advanced engineering design and construction.

But only an actual demonstration can tell you how much these improvements will mean to you. Get that demonstration today!

GENERAL MOTORS TRUCKS

General Motors Truck Co. *(A Subsidiary of Yellow Truck & Coach Mfg. Co.) Time Payments Available*

POWERED BY "TRUCK GMC BUILT" ENGINES EXCLUSIVELY



and Trailers

Through Our Own Y.M.A.C. **Pontiac, Michigan**

Arkansas Highway Commission

(*Continued from page 37*)

on that date a new highway commission of five members, for which the measure provides. It also provides for the election by the commission of a highway director to be the executive officer of the highway department. The new commission replaces the one, which, except for one new member, has directed the entire $100,000,000 road building program since 1927.

New Units of Galion Road Machinery

Latest developments in Galion Road Machinery, made by the Galion Iron Works & Manufacturing Company, Galion, Ohio, covering the new "Chief" 6-cylinder Motor Roller, No. 10 and No. 14 Leaning Wheel Grader with Hydraulic Control, were featured at the recent Road Show in Detroit. The new Galion "Chief," specifically designed to meet present day high speed requirements, is declared to set a precedent in Roller design, incorporating new and important features. Among advantages attributed to it are: Higher speed, greater power, cushioned motor, shorter wheel base, hydraulic steering, differential lock, fuel economy, powerful scarifier, sprinkler attachment and other features.

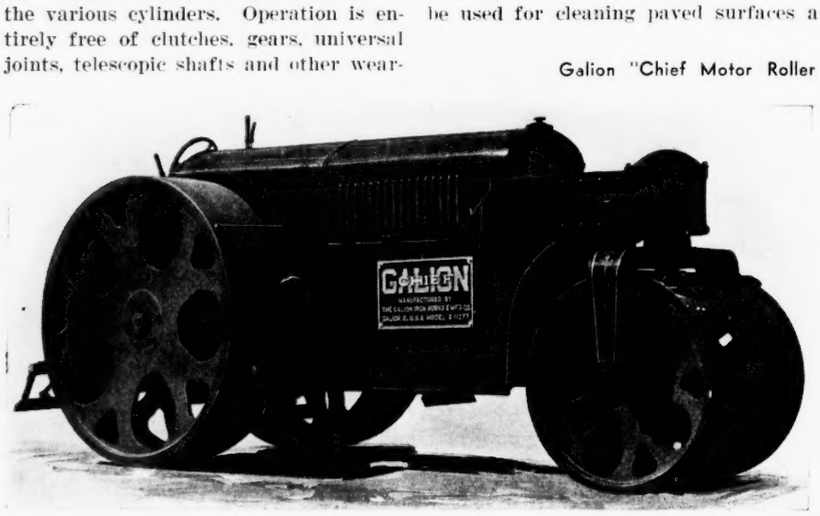
Nos. 10 and 14 Leaning Wheel Graders, with Hydraulic Control, have a wide range of blade reach, the former being furnished with 8-, 9- or 10-foot moldboard and blade, and the latter with a 12- or 14-foot moldboard and blade. Adjustments on these machines are made by a slight forward or backward movement of eight short range levers on the units, the controls being located directly in front of the operator. Power is supplied by a small, dependable single cylinder 4-cycle gasoline engine of 1500 r.p.m. which operates a pump supplying oil to the various cylinders. Operation is entirely free of clutches, gears, universal joints, telescopic shafts and other wearing parts calling for constant attention and lubrication, because hydraulic power requires less machinery and provides smoother operation.

Spring-Scraper and Street Sweeper

The Willett Manufacturing Company, Grand Rapids, Mich., announces its latest improved models of Willett Spring-Scrapers for attachment to all makes of trucks from 1½-ton capacity and up, for speedy maintenance at 10 to 15 miles per hour of gravel, dirt and earth roads. Quick-locking clamps are provided for rapidly changing the angle of the machine, which is powered either with the Willett 2-Speed Hand Pump, giving the equivalent of two-man power for placing heavy cutting pressures on the blade, or the Willett Electric Pump Unit which operates from the standard truck battery. Willett Spring-Scrapers are equipped with hydraulic operation and are simple and easy to operate. They may be equipped with either flat or curved blade.

The company also announces a new Willett Road and Street Sweeper, a self-contained truck sweeping attachment for mounting on the front end of light-duty trucks. It steers in the same radius with the truck, having synchronized coupling to truck steering mechanism. All controls are mounted in the truck cab. An ingenious combination has been effected by the company which is said to provide a most economical unit for cleaning and maintaining all kinds of gravel, dirt and paved streets. A light-duty Willett Spring-Scraper is mounted under the truck chassis on the same truck with the Willett Sweeper, each machine being mounted and operated independently of the other—one being used for scraping and smoothing ruts out of gravel and dirt streets at from 5 to 10 miles per hour, while the Sweeper can be used for cleaning paved surfaces at an average speed of 5 miles per hour. Each machine may be dismounted in a few minutes when the truck is wanted for other purposes.

Galion "Chief Motor Roller



Improved Engine and Trucks

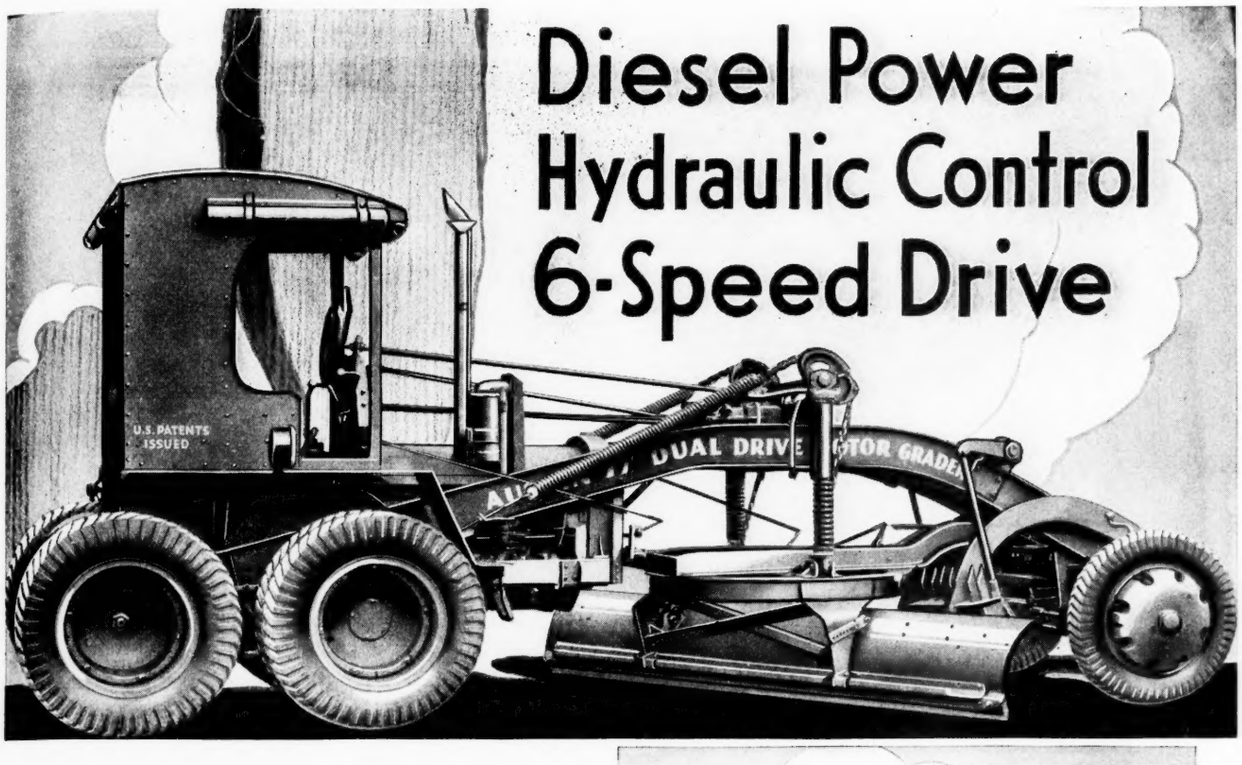
With advanced features making for the maximum of power, economy, durability and dependability, a new six-cylinder, valve-in-head engine, designed for use in superpowered, high speed delivery models, has been introduced by General Motors Truck Company, subsidiary of Yellow Truck and Coach Manufacturing Company, Pontiac, Mich. The introduction of this engine gives the company a complete, unified line of truck-built power plants. Each engine in the line is of uniform valve-in-head design, graduated scientifically in power delivery to meet requirements of every class of commercial use, from light-duty to the most powerful types of truck engines. The new engine is known as the "221" and is now available in two improved G. M. C. truck models—T-18, one and one-half to two tons capacity, and T-23, two to three tons capacity. It is fundamentally designed to give more power with greater economy, replacing the former "200" in the G. M. C. line.

$94,471,000 Valuation on South Carolina Roads

In the fiscal year ended September 30, 1932, the South Carolina highway department had under construction road and bridge projects valued at $16,763,572, according to the annual report of Ben M. Sawyer, chief commissioner, while the complete valuation on all highways of the state at the end of that period was $77,708,205, making a total of $94,471,777.

Increased Demand Low Cost Road Materials

The asphalt industry passed through the critical years of 1930, 1931 and 1932 with an increase in requirements for highway purposes for each year since 1929 that largely offset a decline in industrial demand, states J. E. Pennybacker, managing director of the Asphalt Institute. The depression year of 1932 was shown as registering a large gain in the demand for low cost road materials over the peak year of 1929. Notwithstanding a sharp decline in industrial use of asphalt and in standard paving operations, a survey shows that the tonnage of asphalt sales in 1932 was but 18 per cent below the tonnage for 1929, and that the 1932 asphalt sales total approximates the total sales of 1931.



Diesel Power Hydraulic Control 6-Speed Drive

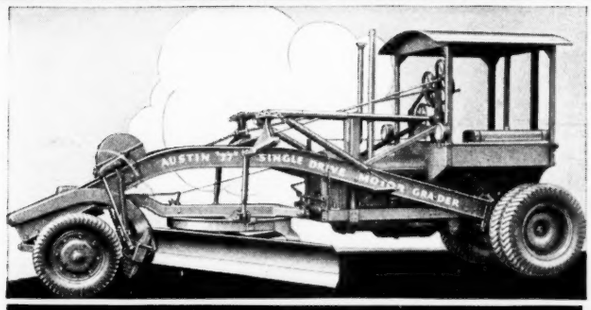
"77" Motor Graders steal every show...

Build a Motor Grader with greater power—better traction—wider speed range—increased ease of control! That was the order given Austin-Western engineers.

Their achievement is the new Austin "77" Motor Grader, Dual and Single Drive, first announced at the Detroit Road Show. Here, as wherever shown, it sets the pace in road grading machinery.

DIESEL POWER Now the proven economy of Diesel motor power lowers the cost per mile of grading operations. So great are the savings from the greater mileage per gallon of fuel and from the use of low cost fuel oil, that they will more than pay for the replacement of old wasteful equipment. Diesel engine, as optional equipment, is an exclusive feature of Austin "77" Dual Drive Motor Graders.

HYDRAULIC CONTROL Extreme ease of operation is accomplished by hydraulic controls, optional equipment on both the Dual and Single Drive "77" Motor Graders. Action is smooth, positive and rapid. The few moving parts run in oil and are completely dust sealed.



New EQUIPMENT • IMPROVEMENTS • VALUES

6-SPEED DRIVE Six speeds forward and two in reverse provide flexibility of operation to meet every condition. High speeds for light work and traveling with fuel economy. Low speeds to pull smoothly through the heaviest going.

EXTRA-WIDE FRONT TREAD Improved resistance to side-draft, added steering stability and easier handling are secured through the use of a new front axle with wider tread. In light ditch work, the inside wheel runs on the firm road and maintains perfect tracking with the drive wheels.

Write for the new bulletin completely describing these and many other features. The Austin-Western Road Machinery Co. Home office 400 North Michigan Avenue. Branches in principal cities.

102

The Austin-Western ROAD MACHINERY CO.

ROAD ROLLERS, CRUSHING & SCREENING PLANTS, SCARIFIERS, SWEEPERS & SPRINKLERS, ROAD GRADERS, ELEVATING GRADERS. MOTOR GRADERS, PLOWS & SCRAPERS, BITUMINOUS DISTRIBUTORS DRAGS, SHOVELS & CRANES, DUMP WAGONS, SNOW PLOWS.

EQUIPMENT
NEW AND IMPROVED

"Cyclone" Wire Rope Drum Hoist

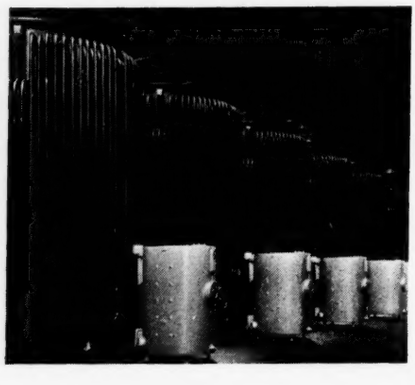
The Chisholm-Moore Hoist Corporation, Tonawanda, N. Y., announces a new "Cyclone" 2-speed, wire rope drum hoist, a compact combination of the well known "Cyclone" Wire Rope Hoist and a Geared Structural Carriage. It is particularly adaptable where headroom is limited and maximum lift is required, designed for use on a double I-beam, overhead traveling crane. The hoisting unit is equipped with a dual chain sheave and two pendant hand chains. The larger sheave provides low speed ratio for capacity loads, and the smaller sheave high speed ratio for light loads. Capacities range from three to thirty tons, inclusive.

Toledo Vibrator Filling Machine

Great accuracy, low labor costs and time-savings are features claimed for the new Toledo Vibrator Filling Machine, recently announced by Toledo Precision Devices, Inc., Toledo, Ohio, in packing such products as nails, pins, washers, nuts, etc. This new device controls the automatic feed of materials from supply bins to the scales and the automatic weighing out of predetermined amounts in packing operations. The machine consists of a Toledo Scale of a high degree of accuracy, an "electric eye" cut-off attachment, and a vibrator holding the articles to be packaged.

Welded Fabricated Products

All-welded products are not a new development at the Pittsfield Works of the General Electric Company. The accompanying illustration shows a row of completed boilers for G. E. oil furnaces dwarfed by giant 132,000-volt, 25 cycle special railway transformers for the Pennsylvania Railroad. Approximately one-half million inches of welding is done at Pittsfield each week in the production of oil furnace boilers alone. Note the similarity in the design of these two all-welded products.



Visible Lubricating System

The Trico Fuse Manufacturing Company, Milwaukee, Wis., has introduced a new automatic, visible lubricating system for ring or ball-bearing shafts. This device, known as the Optomatic Oiler, is designed to provide a continuous oil feed, a micrometer adjustment permitting a wide range of oil levels merely by turning the glass oil reservoir. Filling the reservoir annually or semi-annually is all that is necessary, it is said, thus greatly reducing maintenance expense.

Escapement Type Integrator

An outstanding development incorporated in the new line of Bailey Fluid Meters, recently announced by the Bailey Meter Company, Cleveland, Ohio, is the escapement type integrator, according to the company. This device is said to operate in a simple, but accurate manner. A heart shaped cam, with a uniform angular rise, is geared to a Warren Synchronous Motor and rotated at the rate of two revolutions per minute. By means of a friction clutch between the cam and the escape wheel, the motor drives the escape wheel and integrator counter at constant speed when the pawl is not engaged.

Railroad Coach Air Conditioning

Developed as the result of intimate knowledge of railroad requirement, the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., now builds complete air colling apparatus for steam railroads. Reliability, efficiency, and simplicity of construction are featured. Fundamentally, the equipment consists of only three major component parts—evaporator and air circulation unit mounted under the car roof and used for cooling and dehumidifying air circulated in the car: with condenser unit mounted under the car body.

"Caterpillar" Diesel or Gas Tractors

Engineers of the Caterpillar Tractor Company, Peoria, Ill., have delivered new tractors to meet specifications for the new era of heavy construction. They are "Caterpillar" SEVENTYS, giants in the "Caterpillar" line, of rugged construction, newly engineered and designed throughout. In 1932, the new "Caterpillar" Diesel made good in 6 countries and 25 states within the year, according to the company, which now presents the two largest sizes in its tractor line equipped with either Gas or Diesel engine in the same chassis. Practical advantages of this interchangeable unit from the standpoint of price and availability of parts and service are at once apparent. Some of the leading features of the new SEVENTYS are: Six speeds forward and two reverse; new proven track design, new swing frame construction; six track rollers on each side; advanced idler design; sturdier final drives to handle increased power; increased traction; operator convenience, etc.

Small and Fast Grinder

The Madison-Kipp Corporation, Madison, Wis., announces what is said to be the world's smallest, fastest grinder, a new air tool, weighing only 7 ounces and running at 40,000 r.p.m. Known as the Blue Midget, the new grinder has been developed to fill a need for a small, yet exceptionally efficient air grinding tool for light work and intermittent service. Included with it are 8 feet of air hose, grinding wheel, bottle of Kipp Oil and Kipp Syringe Type Pressure Oiler. The company states that its line of air grinders has now been rounded out to contain models for every service requiring wheels up to 1½ inches in diameter.

Blue Midget Air Grinder

BASE YOUR COSTS ON THE NEW "CATERPILLAR" SEVENTY

PERFORMANCE!

(GASOLINE OR DIESEL POWERED)

15 tons of shrewdly-proportioned weight—15 tons of "Caterpillar" quality and stamina! . . . Ample weight to balance the tremendous traction of broad tracks that grip mightily with 24½ square feet of ground contact! . . . A rugged engine (gasoline or Diesel) that develops 76 maximum horsepower at the drawbar—power to balance generous weight and positive traction! . . . Power delivered through an 8-speed transmission (6 forward and 2 reverse)—a transmission of advanced and exclusive "Caterpillar" design, that responds in every speed to a single gear-shift lever! A flexibility to handle every load, job and condition at the speed which assures utmost efficiency of fuel and time . . . A chassis of super-strength—that features an arc-welded track roller frame and a yoke-type front idler mounting of distinctive "Caterpillar" design . . . Visibility that gives the "Caterpillar" Seventy's driver a clear view ahead, behind and to either side . . . Dust-protection and lubricant-retention developed to a degree never before achieved in a big tractor!

The "Caterpillar" Seventy Tractors present an array of new and thoroughly proved performance features to put the results of the heavy-duty power user on a new basis—to declare more emphatically than ever "Caterpillar" leadership and the proverbial "Caterpillar" slogan: better, quicker, cheaper!

CATERPILLAR TRACTOR CO., PEORIA, ILL., U. S. A.
Track-Type Tractors » Combines » Road Machinery

GET THE DETAILS about the giant new Seventys and all other "Caterpillar" products from your "Caterpillar" dealer—he's in step with 1933!

CATERPILLAR
REG. U. S. PAT. OFF.
TRACTOR

INDUSTRIAL NEWS

American Water Works Association

The annual meeting of the Southeastern Section, American Water Works Association, will be held in Albany, Ga., April 4-6, according to W. H. Weir, Atlanta, secretary-treasurer. A program covering subjects relating to water supply and sewage treatment is being prepared.

Holmes With Inland Steel

Howard A. Holmes, for the past year Assistant District Sales Manager for the Weirton Steel Company in Chicago, has been employed by the Inland Steel Company of that city for service in its Sales Department at its Detroit office. Prior to his Chicago service with Weirton Steel, Mr. Holmes was in the sales office of that company at Detroit.

Timken Steel and Tube Appointment

The Timken Steel and Tube Company, Canton, Ohio, announce the appointment of Delaware Steel Service, Inc., 1614 Summer street, Phildelphia, Pa., as exclusive representatives in the Philadelphia district. Delaware Steel Service is comprised of Gustaf Peterson, formerly of Ludlum Steel Company, and G. A. Wilson, formerly of Associated Alloy Steel Company, and Sturat B. Mathews, formerly of Ludlum Steel, is also associated with them.

Heads Pump Company

John C. Myers has been elected president of The F. E. Myers & Bro. Co., Ashland, O., to succeed P. A. Myers, the late president of the company. Guy C. Myers was elected first vice president A. N. Myers, second vice president; G. D. Myers, third vice president; F. B. Kellogg, secretary and treasurer; J. C. Frantz, assistant secretary, and M. G. Miller, assistant treasurer. The management of the company and operation of its plants at Ashland remain under the personal direction of the sons and brothers of the original founders—F. E. Myers and P. A. Myers. Products of the company include farm operating equipment, pumps, water systems, hay tools, door hangers, etc.

Eastburn Assistant Sales Manager

Central Iron & Steel Company, Harrisburg, Pa., has appointed G. Sharpless Eastburn as Assistant General Sales Manager. He has been associated with the General Sales Department of the company for the past four years.

Reading Iron Appoints Sales Manager

W. S. Shiffer, who has been acting assistant general manager of sales of the Reading Iron Company, Reading, Pa., has been appointed general sales manager of the company. J. L. Jacobson, formerly manager of sales in the central region, has been appointed assistant general manager of sales. Both Mr. Shiffer and Mr. Jacobson will be retained in the general sales office at 401 North Broad street, Philadelphia. Other appointments include: G. H. Woodroffe, manager of boiler tube sales; C. T. Ressler, manager of railroad and marine sales, and L. K. Simons, manager of cut nail sales.

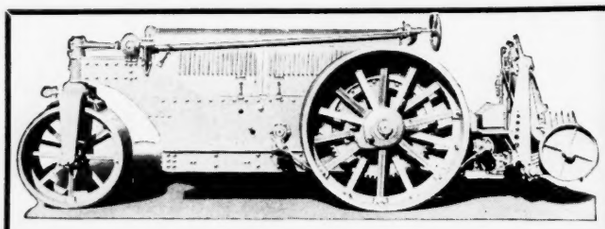
Furniture Plant Offered

E. S. Shields, J. L. Bugg and E. W. Sanford, Jr., trustees, will offer a modern furniture plant at public auction at Farmville, Va., on April 11, 1933, the sale to include all machinery and equipment. It is equipped with individual motor driven machines, and has specialized in the production of kitchen cabinets and chairs, but is said to be suitable for any similar line.

Cement Mill Division

The Babcock & Wilcox Company, New York, announces the creation of a new department with E. H. Fromm, manager, to handle all sales of cement mill equipment. It will specialize on pulverizers for coal, raw material and clinker, dryers, feeders, Fuller-Kinyon systems for coal handling, wear resisting castings and other cement-making equipment. Associated with Mr. Fromm in the new department will be H. B. Smith in the Eastern territory; J. G. Burke, Candler Building, Atlanta, in the Southern territory; H. G. Barnhurst, 20 North Wacker drive, Chicago, Middle-West territory, and C. C. Barnaby Sharon Building, San Francisco, Pacific Coast territory.

(Continued on page 46)



Rugged-Reliable-Modern

That the Buffalo-Springfield Roller really has extra years of service built into it is a fact that becomes readily apparent upon close inspection. Nothing that specialized manufacture considers desirable, or that the most exacting buyer demands, is lacking.

Aside from the incorporation of the latest worthwhile features, these rollers are fabricated with strength, ruggedness, and in consequence, with long life ever in mind as a major consideration.

Built in every practical weight and size, both steam and motor driven, three wheel and tandem. Scarifier and other attachments optional.

Write for illustrated booklet

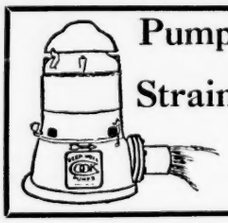
The Buffalo-Springfield Roller Co.
SPRINGFIELD, OHIO

Buffalo-Springfield ROLLERS

Owen Buckets

Stronger and Built to Last Longer, Owen Buckets get "A Mouthful at Every Bite" and More Bites Per Day.

OWEN BUCKET CO.
1811 BREAKWATER AVE. · · CLEVELAND, OHIO



Pumps—Deep-Well Plunger and Turbine
Strainers—and other well supplies
WATER PRESSURE SYSTEMS
A. D. COOK, INC.
Lawrenceburg, Indiana

SAND PUMPS

A wide range of types in sizes 4" to 15"

For belt drive and for direct connection to motor

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AUGUSTA, GA.

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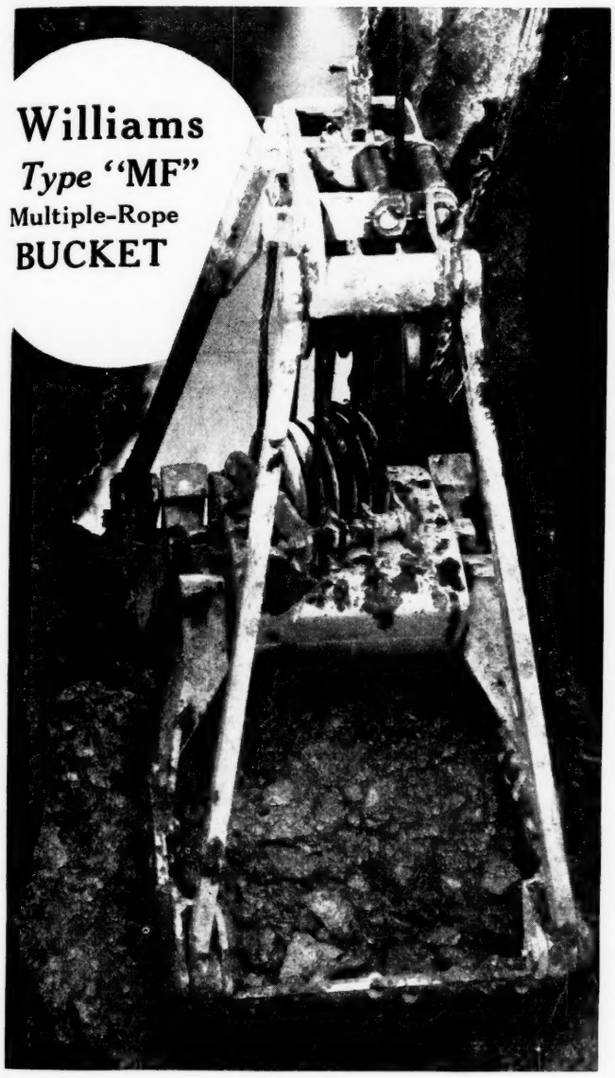

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Rugged double-hinged construction not only allows a wider spread of the open bucket but assures faster headway and dependability in extremely difficult digging . . . Six-part reeving giving straightest lead of closing cable, reduces cable overhaul, wear and replacements . . . Longer roller guards in the head give complete protection against fraying of cable.

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Try this bucket now! It will introduce you to a new saving in time and Money. *Write for descriptive bulletin.*

Power-Arm, Multiple-Rope, and Dragline Buckets — "Arch-Girder" Trailers

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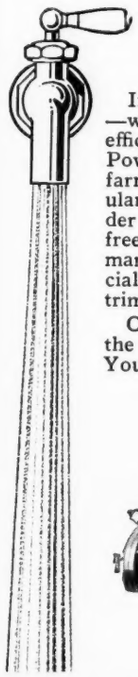
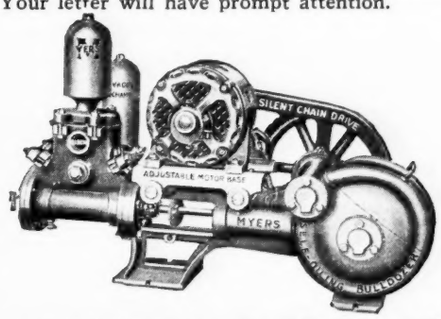


Industrially, agriculturally, commercially —where wheels turn water must flow. The efficiency and economy of Myers Self-Oiling Power Pumps and Water Systems for home, farm or factory, have won widespread popularity for them. Installed and operated under every conceivable condition, their carefree, low-cost operation appeals to the layman as well as to the expert engineer, especially now that it has become necessary to trim all operating expense to the quick.

Our engineering department will welcome the opportunity of offering suggestions. Your letter will have prompt attention.



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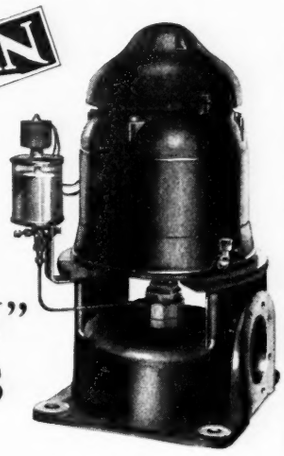

NEW "AMERICAN" TURBINES

The new "American" Turbines have all the features that have made them standard equipment in municipal pumping stations for many years—efficiencies that materially reduce the present cost of pumping water. These new turbines are designed for wells as small as 6 in. in diameter, and are equipped for either oil or water lubrication. "American" engineers and sales offices will gladly furnish data to municipal engineers or officials on this new, low pumping cost turbine.

THE AMERICAN WELL WORKS

General Offices and Factory
AURORA, ILLINOIS
Branch Offices
CHICAGO NEW YORK
Agencies in all principal cities

INDUSTRIAL NEWS

(*Continued from page* 44)

Moore-Handley Places Large Order

As indicating their confidence in an upswing in business, the Moore-Handley Hardware Company, Birmingham, Ala., begins 1933 activities by placing a contract with the Link-Belt Company, Chicago, Ill., for two solid carloads of Link-Belt chains, conveying and power transmission machinery. Link-Belt is one of the oldest companies in the country manufacturing chain power transmission and material-handling machinery.

Hi-Duty Tube Coupling

Following several years' laboratory work, the Imperial Brass Manufacturing Company, Chicago, announces a patent has been issued on their Hi-Duty Tube Coupling. Hi-Duty Tube Couplings are designed for use on copper, Shelby, aluminum, Bundyweld, Everdur, Monel and steel Tubing for automobiles, trucks, tractors, buses, airplanes, air compressors, machine tools, motor boats, gas engines, etc.

Acquires Charter Gas Engine Company

The Charter Gas Engine Company, Sterling, Ill., has been purchased by W. A. Robinson, former president of the Company and designer of the Charter Type "R" Gas Engines. Mr. Robinson is continuing the manufacture of engines under the name of Charter Gas Engine Works, and states that the business will be conducted in accord with the same policies that governed the old company, which pioneered in the gas engine field and engaged in manufacture for 50 years. While the manufacture of the Charter-Mietz Oil Engine is being continued by the new company, the heavy duty Natural Gas Engine is offered as the feature line.

Chain for Every Drive and Carry

The Chain Belt Company, Milwaukee, Wis., announces a new complete line of chains for every drive and carry, constructed of the new Rex Z-Metal, which is declared to offer many outstanding advantages, such as strength, long life, low cost, resistance to acid corrosion, abrasion or pounding.

Wood Preservers.—The C-A Wood Preserver Company, St. Louis, Mo., is distributing a pamphlet, on The Evolution of "Brush and Spray" Wood Preservers Specifications, presenting "information in the interest of economic preservation of woods."

Tri Sodium Phosphate.—The Grasselli Chemical Company, Inc., Cleveland, Ohio, is distributing a folder on Tri Sodium Phosphate—a cleaner for factory use, boiler compound, soda fountains, marble counters, enamelware, dish washing, glassware, windows, wash bowls, sinks, dairy utensils, laundries, bath, etc.

Rock Crushing Equipment.—The Monarch Manufacturing Company, Inc., Wilmington, Del., has issued Bulletin M-1½-1-33, devoted to "Monco" rock crushing and allied equipment—elevators, conveyors, screens, washers, etc. In addition to the manufacture of "Monco" rock crushing machinery, the company handles the engineering and erection of complete plants of any capacity for the production of crushed rock or sand and gravel.

Gardner-Denver Developments.—The Gardner-Denver News, house organ of the Gardner-Denver Company, Quincy, Ill., in its January issue presents a résumé of new developments in Gardner-Denver products made during the past year. This company manufactures pumps, compressors, rock drills, governors, drilling engines, etc.

Industrial Markets.—The Department of Commerce, Washington, in its newest trade publication, "Manufacturing Market Statistics," offers basic marketing data especially designed to aid sellers of products consumed in the manufacturing industries. Copies are obtainable at $1.00 each from the Government Printing Office, Washington, D. C.

Linerite.—The B. F. Goodrich Rubber Company, Akron, Ohio, has published a 20-page booklet which discusses the functions and applications of Linerite and presents illustrations, diagrams and layouts of installations. Linerite is described as a rubber compound which "combines the utmost in toughness and resiliency with an exceptional capacity to resist abrasive wear."

Power Plants.—Industrial literature recently issued by The Ready-Power Company, Detroit, Mich., includes bulletins Nos. 61, 71 and 72. Bulletin No. 61 is devoted to Ford Engined Ready-Power Electric Plants of 7½ kilowatt capacity, direct or alternating current, for the use of farms, contractors, flying fields, railroads, lumber camps, community power and light service, etc. Bulletin No. 71 is devoted to an improved Ready-Power Industrial Truck Power Plant (gas-electric), and bulletin No. 72 to a Ford Engined Ready-Power Industrial Truck Power Plant, also gas-electric.

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MASCOT
LIMESTONE

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ROOFING GRAVEL CRUSHED STONE

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American Limestone Company
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Best for All Purposes

We manufacture all sizes of stone suitable for all classes of road building and concrete work where only a high-grade limestone is required.
Quarries opened up in 1912.
Capacity 8000 tons daily.

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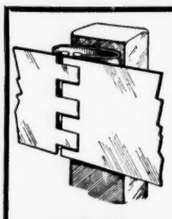
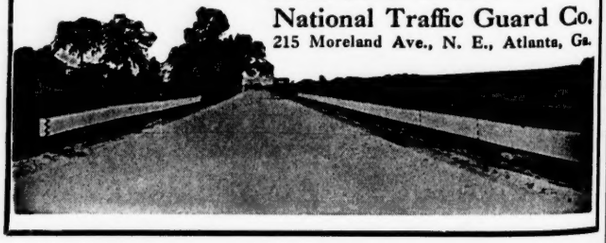


Absorbs the Severest Shocks

The Resiliflex Guard Rail consists of broad galvanized plates, ends interlocking and supported under heavy tension by galvanized steel springs attached to posts.
The interlocking joint assists in absorbing the severest shocks and insures a continuous structure for guarding traffic.

Literature describing in detail the many advantages of Resiliflex Road Guards is yours for the asking.

National Traffic Guard Co.
215 Moreland Ave., N. E., Atlanta, Ga.



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. . . . . with years of experience in successfully executing large construction contracts of various kinds is prepared to undertake the construction of

CONCRETE, MASONRY AND EARTH DAMS . . . DRY DOCKS . . . RIVER AND HARBOR IMPROVEMENTS . . . WATERWAYS . . . DEEPENING CHANNELS . . . DREDGING OF ALL KINDS . . . HYDRAULIC FILLING AND ROCK WORK . . . SEWERS . . . TUNNELS . . . RAILROAD CONSTRUCTION . . . . . .

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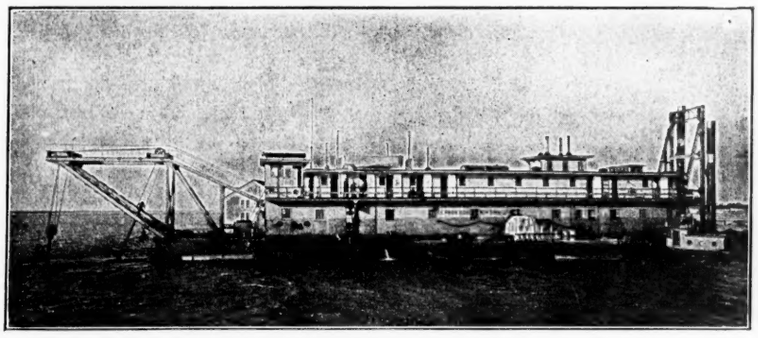

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Legislation is *Helpless* against WEATHER DAMAGE

—but BRICK stops *weather* as well as traffic damage

WEATHER and traffic are the two destroyers of pavements . . . Traffic damage can be held in check, either by legislative restriction, or by using a brick surface . . . But *only* a brick surface can prevent weather damage during the 20-40 years of life that every pavement ought to have . . . Specify the use of brick on new projects and on resurface jobs.

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For further information and engineering data, address National Paving Brick Association, 1245 National Press Bldg., Washington, D. C.

ITEMS OF INTEREST

WE ARE TO HAVE A "LIFE INSURANCE WEEK," April 17-22, and the life insurance people have adopted the slogan "Financial Independence Through Life Insurance." The purpose will be accomplished by "focusing attention on life insurance as a public necessity and a safeguard for the nation's savings." This is as it should be. Life insurance to the needy and hard pressed is set forth as a bulwark and as an ever-present available help. It deserves national observance and anything that will crystalize thought and attention upon the subject of the great good that our firmly established life insurance companies do in the plans of individuals and the country justifies encouragement. It is worthy from the standpoint of centering attention upon the great necessity of protecting in every way the investments of life insurance companies and the interests in which these investments have a part, for anything that affects those investments affects the life of America.

ACCORDING TO THE DIRECTOR OF THE BUREAU OF RAILWAY ECONOMICS, Dr. Julius H. Parmelee, 84 railway systems, with 90 per cent of the total number of employes of the Class I Railroads, now pay pensions to their retired employes. None of the plans adopted by these roads involve any contribution from the employes, but all are financed by the railway companies themselves. The plans vary and cover various provisions, such as age, disability and length of service. Except in a few instances retirement is compulsory at the age of 70. Class I railroads in 1931 had a net income of $134,000,000, while pension payments in that year totaled $32,000,000, or 24 per cent of the net income.

NINETEEN THIRTY-TWO ended with a favorable trade balance of $295,000,000. Exports were $1,617,877,000 while imports were $1,322,665,000.

IN SPITE OF REPORTS of continued warfare in China, the American Commercial Attache in Shanghai says that country is successfully overcoming many of its obstacles with industrialization and road building, making steady advance in all parts of the country as well as "modernization of cities proceeding at a pace probably unequaled in China's history." He quotes the President of the National Government's Central Executive Committee as saying:

> "Despite external and internal dissension, floods and banditry in some provinces the Government has been able to cut a road through our difficulties and although we are still facing many problems we are confident of our ability to lay a firm foundation for the Chinese nation."

While China is much larger than the United States, there are only 12,000 miles of railway compared to 250,000 miles in this country. The number of automobiles in the Republic is about 50,000.

SOUTH AMERICAN TRADE is a matter of vital concern to Southern ports and Southern business interests generally. The New Orleans Times Picayune carries a special dispatch from Caracas, Venezuela, which shows that the free port of Turiamo is at last a reality. The official opening to international shipping on January 19th marked the 25th anniversary of President General Gomez' accession to power.

Estimates place the cost of the project at $10,000,000. Turiamo is said by world travelers to be second only to Rio de Janeiro in beauty and natural perfection among the harbors of the world. Modern concrete roads, aerial tramways handling freight and equipment of a modern type will be part of the facilities.

It is planned that ships discharge their passengers and pick them up three days later at La Guayra, or vice versa. To encourage this trade, the Venezuelean government plans to build on the crest of the mountain overlooking the harbor one of the finest tropical hotels in the world.

A Group of South Carolina Cotton Textile Concerns are interested in the possibility of the sale of 1,000,000,000 yards of cloth to Soviet Russia. The Reconstruction Finance Corporation has been approached with the request to underwrite the sale. Russia's business makes a strong appeal to many people when affairs are dull in this country. In the long run payment must be made in goods. Where this may lead is something else. America is probably not yet prepared to extend official recognition to Russia and the American Federation of Labor, through its president, has recently issued another clear cut statement emphasizing labor's position as unalterably opposed to such a course.

The German Coal Research Institute is reported to have successfully used treated coal as a fertilizer. Ground coal and lignite are said to have shown their effectiveness in plant fertilization.

Opinion Is Becoming Fixed and comment is increasing upon the fact that by improving products and resuming selling efforts producers are re-interesting and re-engaging some of the trade they have lost. Products have been improved and services have been improved, but manufacturers are hestitating to tell about it. Study is being given to the ways in which railroads can improve their service to compete with buses and excellent results in some instances are being accomplished. Air-conditioning for trains offers a superior service in this direction. And, incidentally, the probability of air conditioning for homes and factories and offices is one of the bright prospects of the future.

Notable Progress is being made in cutting budgets in cities and States. The Universal Press Service announces that 16 cities will be governed for $135,000,000 less than they were last year, while 20 States have had their operating appropriations cut more than $122,000,000. The burden of taxation has grown too high and more thought is being given to balancing budgets by cutting out every expense not absolutely necessary.

Walter C. Teagle, in charge of the "Share-the-Work Campaign", estimates that upward of 5,000,000 men and women are in regular jobs today because of the adoption of shorter working schedules on the part of employers. Figures are based upon information from the Departments of Commerce and Labor, and these in turn were based upon replies from business houses throughout the country on employment conditions. The Secretary of Commerce has stated that replies have come in from questionnaires saying that work sharing has been practiced by many thousands of concerns and some of them have been doing it for two years.

Colonel Theodore Swann, President of the Swann Chemical Co., Birmingham, Ala., who is also Chairman of the Committee on Industrial Rehabilitation for the Sixth Federal Reserve District, reports that industrial and business modernization projects reported in his district so far amount to $5,500,000, and this includes $1,500,000 for improvements by the Bogalusa Paper Company, Bogalusa, La. and $900,000 for additions to mill equipment of the Lane Cotton Mills in New Orleans. Other large expenditures under the classification named include $100,000 by D. H. Holmes Company, New Orleans, for air conditioning equipment and other improvements; $1,500,000 by the Freeport Texas Sulphur Co. for new mining equipment; $350,000 by the Jefferson Lake Oil Co., New Iberia, La. for modernized sulphur mining plant.

a Chain for Every Drive and Carry

Announcing

a new complete line of chains of a new metal with outstanding advantages . . . . .

REX Z-METAL

Much could be written about Z-Metal—its development and manufacture, and especially its outstanding advantages and exceptional physical qualities. But it is all very quickly told by reference to Z-Metal performances and qualities compared to metals in common use to meet severe conditions of service.

Strength
Long Life
Low Cost
Resistance to Corrosion
Abrasion
Pounding

Z-Metal in strength exceeds normal grades of carbon cast steel.

Rex Z-Metal chains are considerably stronger than corresponding sizes made of the best grade of malleable iron.

Rex Z-Metal, due to its chemical and physical structure, is resistant to corrosive action under both organic and inorganic acids. To all acid solutions the action is considerably retarded.

Hardness as measured by the Brinell scale is greater than either malleable iron or normal grades of carbon cast steel. Rex Z-Metal withstands abrasive wear to a greater extent than most other cast materials.

Because of increased strength and high yield point, Rex Z-Metal withstands continuous heavy pounding without excessive deformation.

Rex Z-Metal casts very accurately—especially important in chain, as it can be accurately cored. The exact surfaces secure correct sprocket fits—so important in the life of chain and sprockets. Rex Z-Metal Chain fits standard sprockets.

Rex Z-Metal is a decidedly superior ferrous metal and produces an outstandingly superior chain.

You are taking no chances with Rex Z-Metal. It has been thoroughly tried out in your industry—its advantages thoroughly proved. If you are having trouble with:

1. Loads exceeding the yield point of malleable chain causing stretching,
2. Rapid abrasive wear of malleable chain,
3. Failure due to corrosion or a combination of corrosion and abrasion,

Rex Z-Metal will usually solve the problem at *low cost*.

The Chain Belt Company will be glad to place complete and specialized information before anyone interested.

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Turning The Corner

It is the opinion of economists and industrialists that the corner has been turned in business and from now on progress should be apparent. Industry has put its house in order to a remarkable degree.

From the results learned during the depression, it is expected that production will be kept more in line with demand and by economy of operation there will be a better product, probably, at a lower price.

We are prepared to render industry every reasonable service

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FINANCIAL NEWS

Mutual Savings Deposits Steady in 1932

The National Association of Mutual Savings Banks reports "contrary to practically every index of business, deposits in mutual savings banks were well maintained during 1932, showing a decline of silghtly more than one half of one per cent." Their total deposits stood at $9,970,000,000 January 1st. Their combined surplus gained by $18,859,000, making the total surplus $1,142,000,000. While the number of depositors was reduced, the average account rose from $750.77 in a year to $751.48. The highest average account of record was the figure of July 1, 1931, of $753.56. President Wilson G. Wing says "hardly any other result of 1932 shows so clearly the strength of public resistance to the difficulties of the times."

In the last six months the rate of withdrawals decreased in those states which showed declines in the first six months and the rate of gains increased in the other group of states. A most significant statement is added. "Mutual savings banks in the United States now hold a larger amount of money belonging to a larger number of people than on January 1, 1929."

Large Over-subscription

The Treasury Department's February offering of five-year 2⅝ notes were oversubscribed 31 times on the day the books were open. The Treasury had asked for $250,000,000 and the subscriptions totaled $7,800,000,000.

A Possibility for Closed Banks

For a short time in January there was an outcrop of bank failures that assumed discouraging proportions. Most of the number were small banks without sufficient capital to tide over a condition where it was impossible to realize upon frozen assets. This plainly handicaps communities in the tieing up of funds and in a further loss of confidence. The question being asked is whether embarrassed banks may not be kept going by the use, perhaps, of such portion of deposits as remain intact in the way of a capital fund for carrying on business. New enactments might be necessary by the national government or by states where banks come under state laws. It has been suggested that depositors would not object to having a part of the money due them used in this way, provided they were not subject to the usual double liability as stockholders. Whether the scheme is practical or not, almost anything is better than to have the funds of an entire community tied up in a closed bank to the distress of business and individuals.

Is the Dollar Honest?

The Literary Digest says the principle of inflation has been accepted as desirable in the business and financial community, and quotes Bradstreet's as the authority. "The only real question is how to inflate. Knowledge of this baffling phenomenon is still in its infancy and it is the fear of practical consequence of any attempt to jack up prices which checks positive approval." As has frequently been pointed out, every so called artificial measure to improve business is inflationary in its tendency. Loans by the Reconstruction Finance Corporation, which is credited with having done such a necessary work for railroads and banks, may be so classed. Some advocates of inflation point out that we can

(*Continued on page* 52)

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Your bank, too, can enjoy the same skill and experience in vault manufacture and construction that have made the name of YORK preeminent throughout the world. We will gladly confer with you regarding the size and type of vault your bank requires.

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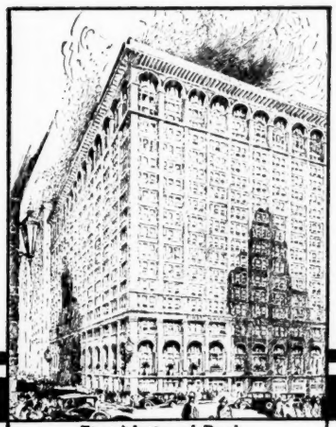
New York City

Los Angeles Branch, Federal Reserve Bank of San Francisco

Equitable Trust Co.—now Chase National Bank, New York City

Buenos Aires Branch of the First National Bank of Boston



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CHARACTER QUALITY SERVICE

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Two Rector Street
New York

Is the Dollar Honest?

(Continued from page 50)

remain on a gold basis and still increase our supply of currency by many billions; that this could be done under Federal Reserve regulations without exceeding the 40 per cent legal reserve required in the Federal Reserve act. Others point out that our supply of currency is $750,000,000 more than in 1929, and take issue with Senator Borah as to what will remedy the situation today when a dollar buys three times as much wheat or three times as much hog as it did in 1929. These opponents of the quantitative theory of money argue that the dollar is only a token and is a medium of exchange for goods or services and it is not the thing to do to shatter the confidence of the world in us by changing the gold basis of our currency, but on the contrary the way to increase prices is to attack the main causes of world depression.

A Valuable Work for Banks

The statement was made recently by an officer of one of the largest New York Trust Companies that bank and trust advertising this year would be materially increased. There is a responsibility resting on the financial leaders of the country to help in pointing the way out of the depression, and it is possible, as done by some successful banks, to use space to shape public opinion in right directions and in the discussion of problems both local and national, instead of with the stereotyped form bank publicity has often taken.

Farm Foreclosures

Accounts multiply of farmers blocking distressed sales of farms. The movement has spread through various states and ordinary processes of law have been set aside by sheriffs under pressure by determined men. The Dallas News says, in referring to the request of the Governor of Wisconsin made to Judges of his State to forget the law on the subject of foreclosure, "of course, the Judges realize as well as the Governor that grave injustices is being done by the law and they are in the same relative position as the Judges of England were when, in opposition to the cruel and harsh decrees of the Crown, they devised divers technicalities by way of providing escape for the innocent and for the guilty who were less grievously in the wrong than the punishment seemed to imply." The News goes on to say, "but there are insurance companies and trust companies whose assets are really the assets of the nation. Some of these will be in parlous state if there is no authority in a mortgage any more."

A great deal is being said about a moratorium applying to debt. Does not this always carry with it the question of how it can be applied without having a moratorium on bank deposits, which are payable on demand?

Bankruptcy Bill

The Bankruptcy Bill now before Congress as this is written, will probably have been passed by both the House and Senate before this paper reaches subscribers. It has received the approval of economists and business men in all parts of the country and is said to be one of the most carefully drawn bills presented for legislative action in a long time. Its provisions have received widespread publicity through the press and are too well known to require detailing here. The individual or business house in distress can appeal to the Court and with the consent of two-thirds of its creditors and the assistance of the Court have time to work out a plan of reorganization whereby assets will be preserved and insignificant minority will not have the power to upset what the Court may decide is a just and equitable plan for all concerned. It promises to be an exceedingly constructive piece of legislation.

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TEXTILE NOTES

Cotton Stocks and Consumption

Textile stocks in the United States at the end of 1932, according to the Agricultural Department in reviewing the cotton outlook, were much lower than at the end of any year in the preceding five, but the estimated world supply of American cotton for 1932-33 is only slightly less than the record supply of the preceding season, and is more than twice the world consumption of American cotton during 1931-32.

The total supply of foreign cotton in 1932-33 is reported at about the same as in the preceding year due to a decrease in carry-over. The Department believes that "with continued small supplies of foreign cotton, world consumption of American cotton in 1932-33 may increase but probably by a smaller amount than last season."

Domestic mill consumption from September to December 1932 was materially above the like period of 1931 and 1930, and averaged about 75 per cent above the low point of July, 1932. The textile situation in Europe also improved during the fall and early winter, and in Japan activity continued at high levels with record quantities of American cotton being used. The estimated world consumption of American cotton during the first four months of the season was 11 per cent above the corresponding period of 1931-32 and 26 per cent above the period August to December 1930-31.

Cotton Prices

Prices of American cotton during 1932-33 remained fairly stable from mid-October to late January, and although substantially below the level reached in late August, they were, at the end of January, about a cent and a quarter above the low point of June, 1932, and about the same as a year earlier. Prices of Indian cotton were still very favorable to the use of American cotton. During the first five month of the season exports of American cotton were higher than in either of the two previous years, and exports of Indian cotton were very small.

American Cotton Supply

The world supply of American cotton for 1932-33 is 25,700,000 bales. This is only 300,000 bales less than the record supply of 1931-32 and is 2,200,000 bales greater than the large supply of 1926-27. The supply for 1932-33 is considerably larger than total world consumption in 1930-31 and 1931-32 combined, and equal to twice last season's increased consumption. The apparent supply of American cotton in the United States on January 1, 1933 was 15,800,000 bales compared with 17,000,000 bales a year earlier. The carry-over constitutes the largest part of the total supply. At 13,000,000 bales it is 4,100,000 bales larger than at the beginning of last season, and is larger than world consumption in 1931-32.

American Cotton Production

The 1932-33 production, estimated at 12,700,000 bales last December, is 4,400,000 bales less than the large crop of last season, and the smallest for nine years. This reduction came as a result of the smallest acreage since 1934-24 and a decrease in yield per acre to 162.1 pounds or 20 per cent below last season. Th area harvested in 1932-33 was 37,589,000 acres according to the December estimate, or 7.6 per cent less than in 1931-32 and 17.9 per cent below that of 1929-30. Much of this land has been planted in food and feed crops, and products for local markets.

The acreage planted in 1933 will depend in considerable part upon farmers' decisions as to the quantity of food and

feed crops they can use or dispose of advantageously in 1933-34.

Boll weevils entered hibernation in larger numbers and were more generally distributed over the Cotton Belt in the fall of 1932 than for several years. Weevil damage, therefore, could easily be unusually heavy in 1933 should weather conditions be favorable to their development. In view of low incomes, farmers are not likely to spend much money in combating them.

The application of commercial fertilizer on cotton dropped 39 per cent in 1932 and 63 per cent since 1929, although the use of cottonseed for fertilizer increased somewhat.

Foreign Cotton

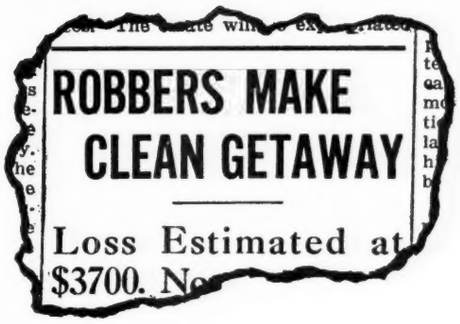
Production of cotton outside the United States in 1932-33 is now estimated at 11,300,000 bales, or about 900,000 bales larger than last season, 600,000 bales below 1930-31, and 1,100,000 bales less than in 1928-29. The Chinese crop of 1932-33 is 600,000 bales larger than 1931-32; this fact largely explains why United States exports to China during the first five months of 1932-33 were 500,000 bales less than during the similar period last season. The Indian crop for 1932-33 is also probably 600,000 bales larger although some reports indicate a smaller increase. The total supply, however, even with a 600,000 bale increase in production will be no larger than the 1931-32 supply because the carry-over was much smaller. The Russian crop is estimated by the Bureau of Agricultural Economics at about 100,000 bales larger than in 1931-32. The Egyptian crop is estimated at 400,000 bales less than in 1931-32 and in Mexico and Brazil reductions are expected. Practically all of the increase in total foreign production this year is offset by a decrease of around 800,000 bales in the carry-over of foreign cotton.

Demand

World consumption of American cotton was 12,300,000 bales in 1931-32, an increase of 1,400,000 bales from 1930-31 which occurred largely through replacement of foreign cotton by American. Consumption in 1931-32, however, was the lowest since 1923-24 with the exception of 1930-31. With continued small supplies of foreign cotton, world consumption of American in 1932-33 may again increase but probably by a smaller quantity than last season. The estimated world consumption of American cotton during the first four months of this season was a little over 450,000 bales or 11 per cent more than during the like period of 1931-32, according to reports of the New York Cotton Exchange. The consumption of all cotton has apparently shown little change.

Consumption of all cotton in the United States was only 4,900,000 bales in 1931-32 as compared with 5,300,000 bales in 1930-31, and 7,100,000 bales in 1928-29. This was the lowest total mill consumption recorded since 1910-11 and on a per capita basis the lowest since 1895-96.

Cotton textile mill activity outside the United States was on the whole only slightly higher in 1931-32 than in the previous season. The consumption of American cotton, however, increased 1,800,000 bales, or 30 per cent, to 7,600,000 bales—the largest since 1928-29. A large part of this increase took place in the Orient. Consumption of American cotton in Japan alone increased more than 600,000 bales—to almost 1,600,000 bales. This made Japan the largest foreign consumer of American cotton last season. China likewise consumed record quantities of American cotton, the total for the season being 900,000 bales, an increase of more than 500,000 bales. The large increase in the Orient as well as the increases in Europe were largely the result of the combined effects of unprecedented supplies of American and the very short supplies of Indian and Chinese cottons. However, the fact that the cotton textile industry in the Orient maintained a high rate of activity despite the world depression was also an important factor.



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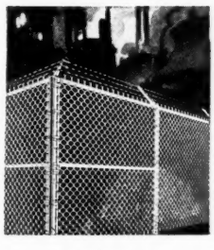

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APPRAISING INDUSTRIAL PROPERTY

By

Louis B. Beardslee

Industrial Realtor

Chicago, Ill.

THE appraisal of industrial property has become as much of a specialty today in the science of real estate appraising as has the brokerage and management of industrial property in the field of general real estate practice. This may be because the public is now demanding trained minds in such problems that may vitally affect the success of various industrial lines.

Photo—Blank-Stoller, Inc.

Two schools of thought have been brought forth in the problem of industrial real estate appraising in improved properties. (1) The method of reconstruction value less depreciation and obsolescence. This is, to a great extent, an accurate cataloging of the various items that comprise an industrial structure with their present day prices and subject to a straight line depreciation of generally from two to three per cent based on the theoretical life of buildings of such character. This method has been followed by many of the organized appraisal companies, and is of particular value in adjusting fire losses with insurance companies, and in mergers of industries. (2) The method which determines, by specialized training, experience, common sense, and a knowledge of market values, the fair, cash, market value. This value is the price, expressed in dollars and cents, at which the minds of a purchaser who is ready, able, and willing, but not compelled to purchase, and a seller who is ready, able and willing, but not compelled to sell, meet.

There is almost always a wide divergence in the figures resulting from the two methods. The industrial structure of today is of value only as its proper construction and condition are of service to industry in its constant struggle to lower overhead costs. Extravagant and overelaborate structures, whose existence may be due to the pride of an organization in its plant home, or the vanity of its directorate, can increase the investment in "bricks and mortar" far beyond its reasonable value to industry. No industry can afford to pay for its plant machine more than the economic value of the floor area involved.

While few industrial properties are purchased as a sought investment, the rental value has a very positive influence in arriving at fair, cash, market value. If the value arrived at, by determining the value of ground and improvements, does not check by an analysis of rental value there is something amiss, especially if the property is improved to its highest and best use. The rental of similar property, similarly situated, or for some reason so located that it is truly competitive, must be taken into consideration by the appraiser. The sales of similar property, if any can be found, must be considered, and the condition of the property must be carefully studied. No two plant structures will depreciate exactly the same. Some are run down by neglect, lack of interest, or financial inability, and others are kept in a constantly high state of efficiency. The character of the occupation may have much to do with its physical deterioration. To appraise buildings by rule of thumb, and depreciate them at a set percentage per annum, will only be accurate by accident.

In one of our large cities, an industrial property was appraised by witnesses on both sides of a foreclosure proceeding. The building was of the ordinary wood truss roof type, sprinklered, of two and one stories in height, the two story section being occupied by the offices which were of special design. Fireplaces graced the private offices, rough plaster lined the walls and ceiling with expensive tinting, and there were dining rooms, rest rooms, and other conveniences on a rather elaborate scale. The building boasted of a tower of ornamental design but which had no practical value further than to create a small garage on the first floor and a small loading door for trucks. The building was built in three sections and was divided by two center walls, making a narrow court down the center, of no value for light or air. A considerable area of floor space was practically lost by a partially depressed section utilized by the heating plant. The floors were of two levels which communicated by two ramps across the narrow court in the center. It was a nice, attractive plant—from the outside.

When it was completed, an appraisal of its reconstruction value was made, an arbitrary value for land added, and a large bank loaned $200,000 on a bond issue covering this, and other vacant property in the vicinity.

In the foreclosure proceeding the witness representing the owner of the equity (?) figured a replacement value of

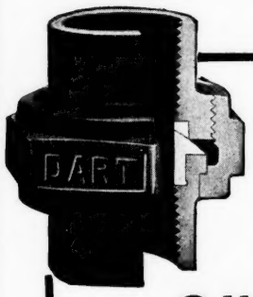
Building	$177,000
Land at 50c per square foot	38,000
Total land and building	$215,000

The witness for the mortgagee testified as to its fair, cash, market value. The different floor levels, the two surplus walls, the lack of adequate trucking accommodations, the ornamental tower, and other items were considered, as well as evidences of depreciation. An opinion of value was rendered at one dollar per square foot for the first floor and $1.10 per square foot for the office floor, or a total of

Building value.....	$78,000
Land at 40c per square foot	30,400
Total land and building	$108,400

On account of his being actively engaged in the industrial real estate business, this appraiser knew the rental that such a property would bring. This figure was 20 cents per square foot. After securing information regarding the taxes and insurance, these amounts were deducted, and a net rental, or income, determined. This was analyzed on a basis of six per cent of the ground value as ground rental, and the balance figured on the basis of ten per cent to cover interest, depreciation, rental hazard, etc., as applying to the improvement. The result was within $200 of his first method, or a very satisfactory check from a rental standpoint. A deficiency decree of over $50,000 was awarded by the judge.

The appraisal of public utilities, grain elevators, steel plants, and other industrial properties of special character, must be treated differently, as they are not valued on a floor area basis. The appraisal of railroad right of ways is also considered differently than other characters of property. On specially designed improvements erected for industrial use, it is very often advisable for the appraiser to have the cooperation of engineering skill. A real estate appraiser should confine himself to real estate, and engineers should seek the assistance of realtors on matters pertaining to real estate problems of land values.



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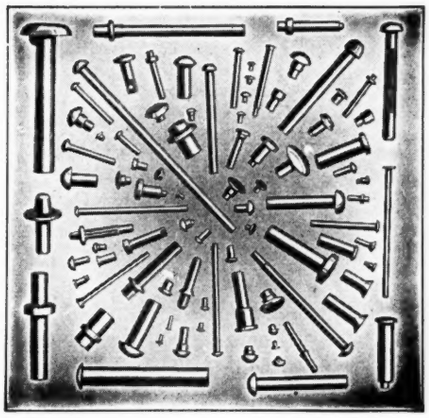

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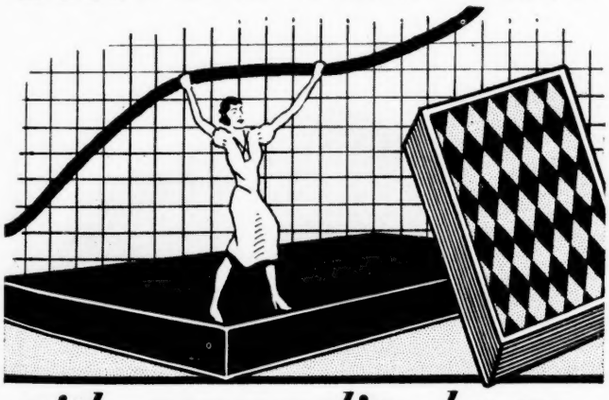

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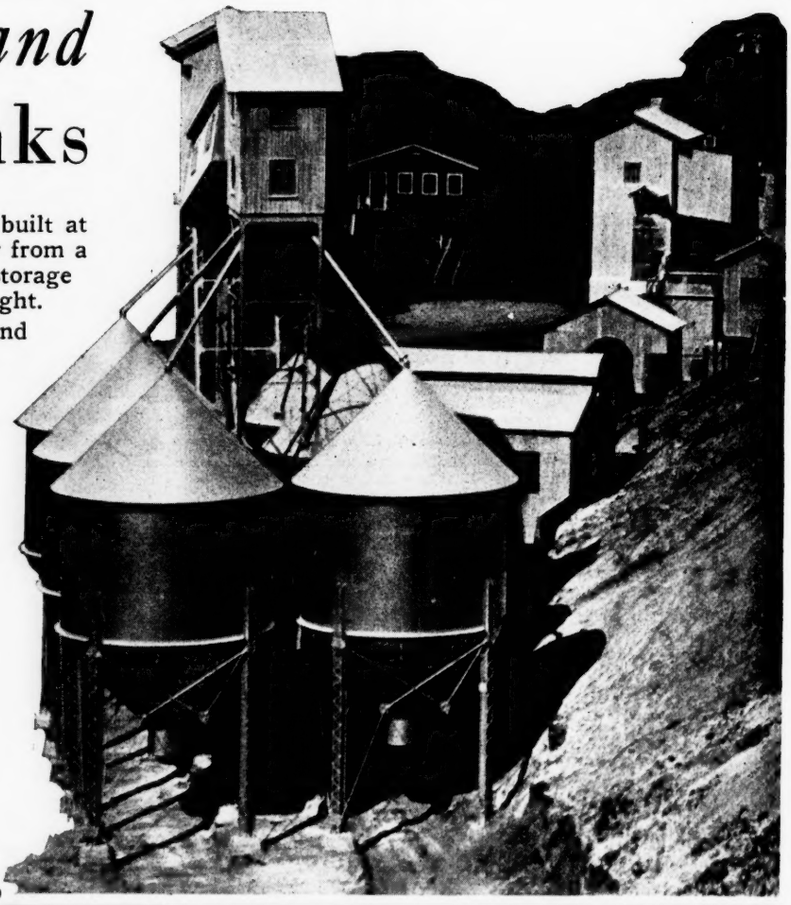

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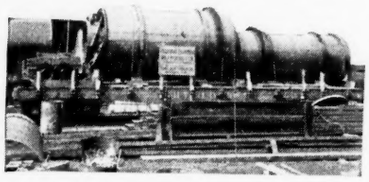

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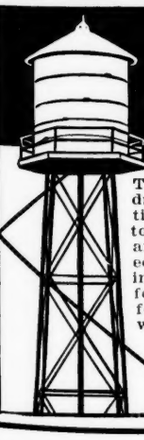

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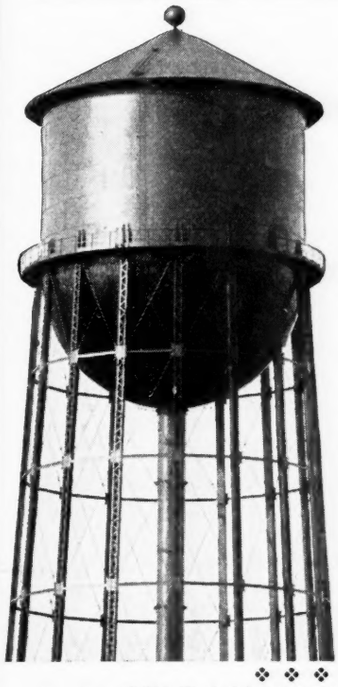

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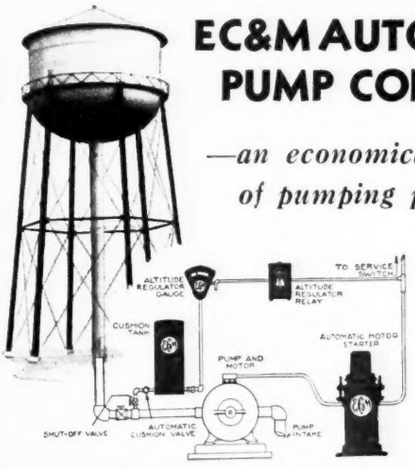

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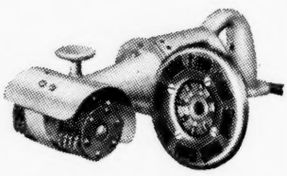

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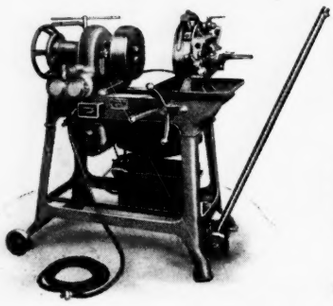

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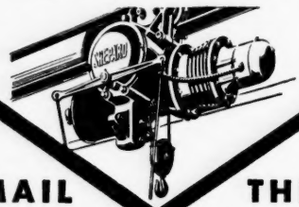

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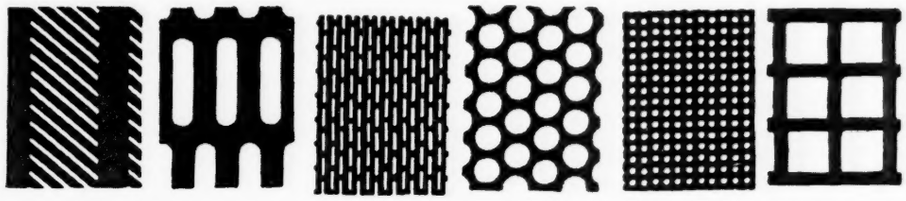

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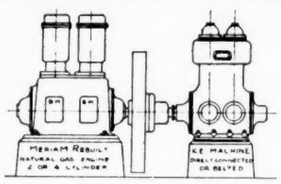

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INDEX FOR BUYERS

Numbers Indicate Pages Where Products Can Be Found

Architects 53
Attorneys (Patent) 53, 67
Bins 60
Boilers 62, 64, 65, 66, 69
Boxes (Paper) 57
Brick (Paving) 48
Brick Machinery 63
Bridges 2, 35, 60
Buckets (Orange Peel, Clam Shell) .. 44, 45
Castings 63
Chain 49
Chemists 53
Compressors (Air) 64, 65
Contractors 47, 53, 60
Conveyors 49, 70
Creosoted Materials 59
Directories (Building Materials) 57
Drawing Instruments 54
Dredging Contractors 47
Electric Machinery 66
Engineers 53, 60
Engines (Gas and Gasoline) 65, 69
Fencing 55
Filters (Water) 59
Financial 50, 52
Flooring (Maple) 59
Flooring (Steel) 35, 60
Foundry Supplies 69
Galvanizing 63
Gasoline 71
Gears 62
Glass (Window) 10
Granite 59
Grinding Wheels 4
Hoists 62
Hotels 62, 67
Land (Farm) 65
Lighting (Industrial) 29
Limestone (Crushed) 46
Locomotives (Gasoline) 33
Lumber (Creosoted) 59
Machinery (New & 2nd hand) 64, 65, 66
Machinists 62
Mail Chutes 58
Marble 59
Oil (Lubricating) 71
Perforated Metal 63
Piling Poles, etc. (Creosoted) 59
Piling (Sheet Steel) 64
Pipe (Cast Iron) 59
Pipe (Clay) 59
Pipe (Steel and Iron) 7-9-35, 54, 64
Pipe Threaders 62
Pump Control 61
Pumps 44, 45, 69
Railroads 72
Rails, Track 54
Road and Street Machinery 36, 41, 44
Road and Street Material 46, 47, 48, 54
Sand and Gravel 46, 47, 54
Screws and Nuts 57
Sheet Piling 64
Sheets (Steel, Galvanized, etc.) .. 7, 35, 54, 58
Ships (Welded) 35, 62
Shovels (Power) 64
Sprinkler Systems 61
Stationers 52, 53
Steel and Wire Products 7
Steel Plate Work 35, 61, 62
Stokers 69
Stone (Crushed) 46
Structural Steel 2, 54, 60
Tablets (Bronze) 58
Tanks and Towers (Steel & Wood) 35, 60, 61, 62
Tarpaulins 54
Telephone Service 31
Tractors 43, 64
Trailers 38, 39
Tramrail (Overhead) 8
Trucks (Motor) 6, 38, 39
Turbines (Steam) 69
Unions (Pipe) 57
Vaults (Bank) 51
Waste Receptacles 70
Woodwork 58
Woodworking Machinery 65
Zinc Chloride 3

Unemployment Reserves

A program of unemployment reserves for American industry which also stresses the importance of prompt concerted action by industrial leaders to guide and shape legislation on this subject is to be issued by the National Industrial Conference Board. It is based on an intensive study of employment reserve plans by a number of the country's prominent business and personnel executives.

"There are several cogent reasons why industry should act in this matter," says the Conference Board. "First, it is recognized that industry has a responsibility in relation to unemployment, which involves an obligation to assist its stable and permanent workers to protect themselves against the vicissitudes of unemployment in normal times. This responsibility should be met; industry should do its fair share toward the solution of the unemployment problem. Second, action by industry for the establishment of private unemployment in general. It would at least effect the dimensions of the problem, by providing for considerable groups of the stable and permanent workers. Third, a program of unemployment reserves that was generally agreed upon by employers would set a standard or model that would influence the character of legislation on this subject. If, as recent developments clearly indicate, legislation of some kind is inevitable, industry should take measures for shaping the course of legislation, particularly for preserving to employers the right to establish and operate their own plans. The most effective way to combat objectionable proposals of legislation is to offer sound alternative proposals of a constructive character that will command the support of legislators and the public generally."

In addition to an outline of the essentials of an unemployment reserve plan, the report contains a review and analysis of the various unemployment reserve plans, both public and private, now in effect or proposed, including the Wisconsin law and bills recommended by various State unemployment commissions. None of these plans is intended for relief of the present widespread depressional unemployment. The discussion is confined to the group of measures designed to alleviate the hardships of unemployment in the future. The report recognizes the fact that any action taken now can do little or nothing to relieve present conditions.

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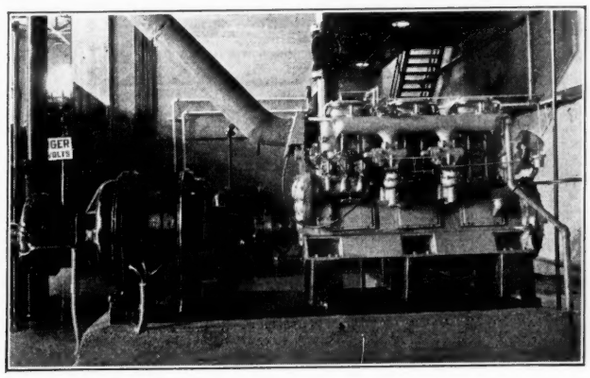

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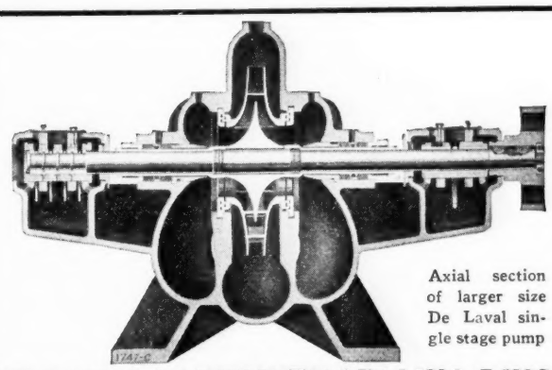

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INDEX OF ADVERTISERS

A

Alban Tractor Corp..... 64
Albert & Davidson Pipe Corp. 64
Albert Pipe Supply Co..... 64
American Creosote Works, Inc. 59
American Die & Tool Co..... 62
American Limestone Co..... 46
American Rolling Mill Co.... 35
American Sheet & Tin Plate Co. 58
American Telephone & Telegraph Co. 31
American Water Softener Co. 59
American Well Works..... 45
Andrews, Harden & Co..... 53
Arundel Corporation 47
Atlanta Tent & Awing Co.... 54
Atlantic Cerosoting Co., Inc.. 59
Atlantic Gulf & Pacific Co.... 47
Austin Bros. Bridge Co..... 60
Austin-Western Road Mchy. Co. 41

B

Bacharach & Co., E. W..... 59
Baltimore Commercial Bank.. 50
Baltimore Trust Co..... 50
Belmont Iron Works..... 60
Bethlehem Steel Co..... 54
Blair, Algernon 53
Box 9229 66
Boxley & Co., W. W..... 46
Brooks, Benjamin T..... 53
Brown, Jas. W..... 53
Bryant Electric Co..... 53
Buck, Sterling P..... 53
Buffalo-Springfield Roller Co. 44
Byllesby Engineering & Management Corp. 53

C

Carborundum Co. 4
Carolina Steel & Iron Co..... 60
Caterpillar Tractor Co..... 43
Cattie & Bros., Joseph P..... 63
Central Iron & Steel Co..... 35
Central Pipe & Supply Co.... 64
Chain Belt Co..... 49
Charleston Dry Dock & Machine Co. 62
Chattanooga Boiler & Tank Co. 61
Chicago Bridge & Iron Works 60
Classified Opportunities 67
Cleveland Tramrail Division.. 7
Cleveland Crane & Engineering Co. 7
Cole Mfg. Co., R. D..... 61
Converse & Co., J. B..... 53
Cook, Inc., A. D..... 44
Crucible Steel Casting Co.... 63
Cutler Mail Chute Co..... 58
Cyclone Fence Co..... 55

D

Dart Mfg. Co., E. M..... 57
Davis & Son, G. M..... 61
DeLaval Steam Turbine Co... 69
Delta Equipment Co..... 64
Detroit Stoker Co..... 69
Dow, A. W..... 53

E

Earle Gear & Machine Co..... 62
Electric Bond & Share Co.... 52
Electric Controller & Mfg. Co. 61
Electric Service Co..... 66
Eppinger & Russell Co..... 59
Equipment Corp. of America. 64
Erdle Perforating Co..... 63

F

Fay & Egan Co., J. A..... 65
Finnigan Co., Inc., J. J..... 62
Fiske-Carter Construction Co. 53
Friend & Co..... 54
Froehling & Robertson..... 53

G

Galion Iron Works & Mfg. Co. 36
General Electric Vapor Lamp Co. 29
General Machine Works..... 62
General Motors Truck Co.38 and 39
Georgia Iron Works..... 44
Georgia Marble Co..... 59
Gerding Brothers 62
Glamorgan Pipe & Fdy. Co.. 59
Grasselli Chemical Co..... 3
Greenpoint Iron & Pipe Co.. 64
Gulf Refining Co..... 71

H

Hardaway Contracting Co.... 53
Harrington & King..... 63
Heath Co., J. S..... 58
Herfurth Machinery Co..... 66
Holt Hardwood Co..... 59
Hunt Co., Robert W..... 53
Hyman-Michaels Co. 64

I

International Harvester Co... 6

J

Jefferson Foundry Co..... 63

K

Kennedy-Riegger Drilling Co. 53
Kerlow Steel Flooring Co.... 61
Knox Co., Earl E..... 64

L

Lancaster Iron Works..... 61
Lee Clay Products Co..... 59
Lee Engineering Corp., W. S. 53
Lima Excavator Sales Agency 64
Link-Belt Co. 70
Lockwood Greene Engrs., Inc. 53

M

Manhattan Perforated Metal Co. 63
Marine Metal & Supply Co.... 64
Maryland Pipe & Steel Corp. 64
McCallum Inspection Co..... 53
McClintic-Marshall Corp. 35
McDowell Pipe Corp..... 64
Meriam Company 65
Missouri-Kansas-Texas R. R.. 72
Mitchell Mfg. Co., Robert..... 58
Model Land Co. (Flagler System) 65
Moorhead-Reitmeyer Co..... 66
Moore Pipe & Sprinkler Co... 61
Mott Core Drilling Co..... 53
Moyer Co., Tilghman..... 53
Mundt & Sons, Chas..... 63
Myers & Bros. Co., F. E..... 45

N

Nashville Industrial Corp.... 65
National Paving Brick Asso.. 48
National Traffic Guard Co.... 46
National "Who-Handles" Bldg. Products Directory Co..... 57
Nats Salvage Co..... 64
North Carolina Granite Co... 59

O

O'Brien Machinery Co..... 65
Old Dominion Box Co..... 57
Owen Bucket Co..... 44
Owensboro Sewer Pipe Co.... 59

P

Pennsylvania Drilling Co.... 53
Pittsburgh Plate Glass Co.... 10
Progressive Mfg. Co..... 57
Proposals 68
Purdy, Eugene H..... 53

R

Reading Iron Co..... 9
Redmont Hotel 67
Resale Department..64, 65 and 66
Richmond Fdy. & Mfg. Co... 63
Roanoke Iron & Bridge Co.. 60
Roberts Filter Mfg. Co..... 59
Robinson & Orr..... 64
Rockford Power Machinery Co. 66
Rogers Co., Thomas F..... 53

S

Sachsenmaier Co., George..... 66
Salem Foundry & Machine Works 63
Saxe, Van Rensselaer P..... 53
Shepard Niles Crane & Hoist Corp. 62
Shields, E. S..... 67
Smith & Sons Co., Oscar T.... 52
Smith & Co., W. M..... 66
Snare Corp., Frederick..... 60
Snead Architectural Iron Wks. 61
Southern Hotel 62
Sprague & Henwood, Inc..... 53
Steele & Sons, J. C..... 63
Sterling Engine Co..... 69
Sweet's Steel Co..... 54

T

Table of Contents..... 5
Tarr, Louis A..... 64
Titusville Iron Works Co..... 69

V

Virginia Bridge & Iron Co.... 2
Virginia Engineering Co..... 53

W

Walker Electrical Co..... 53
Warner Service Co..... 53
Webb Electric Co..... 53
Weber Co., Inc., F..... 54
Wellman Engineering Corp... 45
Whitaker Paper Company.... 70
Whitcomb Locomotive Co..... 33
Wiedeman and Singleton, Inc. 53
Wiley & Wilson..... 53
Wood, James .....64 & 66

Y

York Safe & Lock Co..... 51
Young & Selden Co. 53
Youngstown Sheet & Tube Co. 8

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